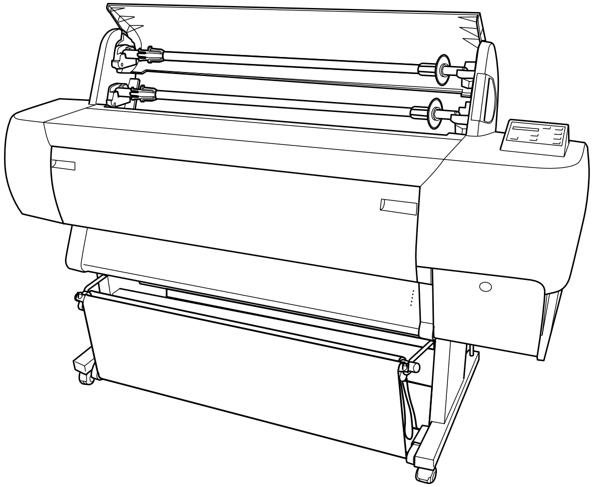
SERVICE MANUAL



Large Format Printer

EPSON Stylus Pro 10000/10000CF

SEIJ00020

Notice:

- All rights reserved. No part of this manual may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of SEIKO EPSON CORPORATION.
- The contents of this manual are subject to change without notice.
- All effort have been made to ensure the accuracy of the contents of this manual. However, should any errors be detected, SEIKO EPSON would greatly appreciate being informed of them.
- The above not withstanding SEIKO EPSON CORPORATION can assume no responsibility for any errors in this manual or the consequences thereof.

EPSON is a registered trademark of SEIKO EPSON CORPORATION.

General Notice: Other product names used herein are for identification purpose only and may be trademarks or registered trademarks of their respective owners. EPSON disclaims any and all rights in those marks.

Copyright © 2000 SEIKO EPSON CORPORATION. Printed in Japan.

PRECAUTIONS

Precautionary notations throughout the text are categorized relative to 1)Personal injury and 2) damage to equipment.

DANGER	Signals a precaution which, if ignored, could result in serious or fatal personal injury. Great caution should be exercised in performing procedures preceded by DANGER Headings.
WARNING	Signals a precaution which, if ignored, could result in damage to equipment.

The precautionary measures itemized below should always be observed when performing repair/maintenance procedures.

DANGER

1. ALWAYS DISCONNECT THE PRODUCT FROM THE POWER SOURCE AND PERIPHERAL DEVICES PERFORMING ANY MAINTENANCE OR REPAIR PROCEDURES.
2. NO WORK SHOULD BE PERFORMED ON THE UNIT BY PERSONS UNFAMILIAR WITH BASIC SAFETY MEASURES AS DICTATED FOR ALL ELECTRONICS TECHNICIANS IN THEIR LINE OF WORK.
3. WHEN PERFORMING TESTING AS DICTATED WITHIN THIS MANUAL, DO NOT CONNECT THE UNIT TO A POWER SOURCE UNTIL INSTRUCTED TO DO SO. WHEN THE POWER SUPPLY CABLE MUST BE CONNECTED, USE EXTREME CAUTION IN WORKING ON POWER SUPPLY AND OTHER ELECTRONIC COMPONENTS.

WARNING

1. REPAIRS ON EPSON PRODUCT SHOULD BE PERFORMED ONLY BY AN EPSON CERTIFIED REPAIR TECHNICIAN.
2. MAKE CERTAIN THAT THE SOURCE VOLTAGES IS THE SAME AS THE RATED VOLTAGE, LISTED ON THE SERIAL NUMBER/RATING PLATE. IF THE EPSON PRODUCT HAS A PRIMARY AC RATING DIFFERENT FROM AVAILABLE POWER SOURCE, DO NOT CONNECT IT TO THE POWER SOURCE.
3. ALWAYS VERIFY THAT THE EPSON PRODUCT HAS BEEN DISCONNECTED FROM THE POWER SOURCE BEFORE REMOVING OR REPLACING PRINTED CIRCUIT BOARDS AND/OR INDIVIDUAL CHIPS.
4. IN ORDER TO PROTECT SENSITIVE MICROPROCESSORS AND CIRCUITRY, USE STATIC DISCHARGE EQUIPMENT, SUCH AS ANTI-STATIC WRIST STRAPS, WHEN ACCESSING INTERNAL COMPONENTS.
5. REPLACE MALFUNCTIONING COMPONENTS ONLY WITH THOSE COMPONENTS BY THE MANUFACTURE; INTRODUCTION OF SECOND-SOURCE ICs OR OTHER NON-APPROVED COMPONENTS MAY DAMAGE THE PRODUCT AND VOID ANY APPLICABLE EPSON WARRANTY.

Safety Information

To prevent accidents during a maintenance procedure, strictly observe the Warnings and Cautions. Do not do anything that is dangerous or not within the scope of this document.

Do not do anything that is dangerous even if not specifically described in this manual. In addition to the descriptions below and those given in this manual, there are many situations and circumstances that are dangerous. Be aware of these when you are working with the printer.

Laser Beam

WARNING

The laser beam used for Auto Point Head Optimization System is a very powerful, straight, narrow beam of light that produces extreme heat at its focal point. Direct eye exposure to the laser beam may cause eye injury or blindness. Never place a mirror or a reflective tool or object in the laser beam path.

To avoid permanent eye damage, follow these directions;

- Before starting any service procedure, switch off the printer power and unplug the power cord from the wall outlet.
- Do not disassemble the Flushing Duct or any laser component that displays Laser Warning Sticker.
- Use caution when you are working around the Flushing Duct or when you are performing laser related repair procedures.
- Do not disassemble the printer in such a way that the laser beam can exit the printer engine during a print cycle.

About This Manual

This manual describes basic functions, theory of electrical and mechanical operations, maintenance and repair procedures of EPSON EPSON Acu Laser C2000. The instructions and procedures included herein are intended for the experienced repair technicians, and attention should be given to the precautions on the preceding page.

Contents

This manual consists of six chapters and Appendix.

CHAPTER 1. PRODUCT DESCRIPTIONS

Provides a general overview and specifications of the product.

CHAPTER 2. OPERATING PRINCIPLES

Describes the theory of electrical and mechanical operations of the product.

CHAPTER 3. TROUBLESHOOTING

Provides the step-by-step procedures for the troubleshooting.

CHAPTER 4. DISASSEMBLY AND ASSEMBLY

Describes the step-by-step procedures for disassembling and assembling the product.

CHAPTER 5. ADJUSTMENTS

Provides Epson-approved methods for adjustment.

CHAPTER 6. MAINTENANCE

Provides preventive maintenance procedures and the lists of Epson-approved lubricants and adhesives required for servicing the product.

CHAPTER 7. APPENDIX

Provides the following additional information for reference:

- Connector pin assignments
- Parts list
- Electric circuit boards components layout
- Exploded diagram
- Electrical circuit boards schematics

Symbols Used in This Manual

Various symbols are used throughout this manual either to provide additional information on a specific topic or to warn of possible danger present during a procedure or an action. Be aware of all symbols when they are used, and always read WARNING, CAUTION or NOTE messages.

WARNING ⚡	**Indicates an operating or maintenance procedure, practice or condition that, if not strictly observed, could result in injury or loss of life.**
CAUTION !	**Indicates an operating or maintenance procedure, practice, or condition that, if not strictly observed, could result in damage to, or destruction of, equipment.**
CHECK POINT ✓	**May indicate an operating or maintenance procedure, practice or condition that is necessary to accomplish a task efficiently. It may also provide additional information that is related to a specific subject, or comment on the results achieved through a previous action.**
REASSEMBLY ↶	**Indicates a reassembly procedure, practice, or condition that, if not strictly adhered to, could result in damage to, or non operability of, the equipment.**

Revision Status

Revision	Issued Date	Description
Rev.A	March 30,2001	First Release

Rev.B	May 1,2001	Chapter 1 • 1.1:Throughput of semiglossy photo paper revised. • 1.1:"PS server" deleted. Tables of exclusive paper deleted. • 1.1.1: Ink cartridge code corrected. Specification paper description revised. • 1.2: Nozzle number for color revised. Paper feed speed added. • Table 1-6: "Scrim Vinyl" deleted. • 1.2.5: Discription of paper set lever revised. • 1.2.7: The power consumption revised. • 1.2.8: The safety approvals revised. • 1.2.9: The reliability revised. • 1.2.10: The cutting specification revised. • 1.2.13: The physical dimensions revised. The drawing of dimensions unit 2 deleted. • 1.5.1: The panel display priority revised. • 1.6.1: Printer Setting Menu revised. • 1.6.6: Gap adjustment revised. • 1.7 Maintenance mode revised. Chapter 2 : Section name revised. Table 2-2 : The description revised. 2.2.2: The description of shutter and shutter motor added. Chapter 3 • Table 3-21: Error code for CPU address errors revised. • P.97,98: Service call error descriptions revised. • Warning tables added. Chapter 4 • 4.1.1 : The transportation mode in the checkpoint deleted. • 4.2.1.1, 4.2.1.2, 4.2.1.5,4.2.1.6,4.2.1.11, 4.2.3.2 : The description of disassembly / assembly procedure revised. Chapter 5 • Table 5-2, 5-9 revised. • Renamed form Banding adjustment to Paper feeding adjustment. • Offset adjustment revised. • A13/A123/B123 Slant Adjustment revised. • Head RL Adjustment renamed from Head Gap Adjustment and revise the table. • Print head cleaning rename from Print head washing • P_Front/P_Rear/P_Edge sensor adjustment revised.

1.1 Features 14
  1.1.1 Consumable Products & Options 15
1.2 Specifications 16
  1.2.1 Print Specifications 16
  1.2.2 Character Specifications 16
  1.2.3 Paper Feed 16
  1.2.4 Paper 16
    1.2.4.1 Roll Paper 16
    1.2.4.2 Sheet 17
    1.2.4.3 Printable area 21
  1.2.5 Paper set lever 22
  1.2.6 Ink Cartridge 22
  1.2.7 Electrical specification 24
  1.2.8 Safety approvals 24
  1.2.9 Reliability 25
  1.2.10 Environmental Conditions 25
    1.2.10.1 Temperature/Humidity 25
    1.2.10.2 Vibration & Shock 26
  1.2.11 Controller 26
  1.2.12 Cutting Specification 27
    1.2.12.1 Automatic cut of roll media 27
    1.2.12.2 Manual cut of roll paper 27
  1.2.13 Physical Specification 28
1.3 Interfaces 29
  1.3.1 Parallel Interface 29
  1.3.2 USB 35
  1.3.3 TYPE-B Optional Interface 36
  1.3.4 Complement Item 36
1.4 Operating Panel 38
  1.4.1 Indicator Status in Normal Mode 40
1.5 Operating Panel Messages 41
1.6 SelecType Settings 42
  1.6.1 Printer Setting Menu 44
  1.6.2 Test Print Menu 45
    1.6.2.1 Nozzle check 45
    1.6.2.2 Status sheet 45
  1.6.3 Printer Status Menu 46
  1.6.4 User Paper Setup Menu Items 47
    1.6.4.1 Detecting Paper Thickness 47
  1.6.5 Cutter Replacement Menu 48
  1.6.6 Gap Adjustment 49
1.7 Maintenance Mode 50
  1.7.1 Outline 50
  1.7.2 Hexadecimal Dump 53
  1.7.3 Panel Display Language Select 53
  1.7.4 Auto nozzle check 53
  1.7.5 Ink information menu 53
1.8 Maintenance Mode 2 54
1.9 Jumper Settings 58
2.1 Description 61
2.2 Printer Mechanism Components 63
  2.2.1 Carriage device section 67
  2.2.2 Paper feed section 73
  2.2.3 Cleaning device section 77
  2.2.4 Dot missing detector / Flushing box 79
  2.2.5 Ink pump Assy 80
  2.2.6 Ink supply device section 81
  2.2.7 Others 82
2.3 C362MAIN board 83
2.4 C362DRV board description 84
2.5 Power supply circuit board description 85
3.1 Outline 87
  3.1.1 First... 87
  3.1.2 Trouble-shooting practice 87
3.2 Troubleshooting Using the Messages 88
  3.2.1 Warnings 93
  3.2.2 Errors 94
3.3 Service engineer require message 101
  3.3.1 Maintenance call 101
  3.3.2 Fatal error 102
3.4 Troubleshooting Based On Printout 111
  3.4.1 Dot Missing 111
  3.4.2 Uneven Printing / Poor Resolution 111
  3.4.3 Smudged or Marred Printout (Front) 112
  3.4.4 Smudged or Marred Printout (Reverse side) 112
  3.4.5 White or Black Banding 112

4.1 Summary 114
4.1.1 Warnings 114
4.1.2 Tools 118
4.1.3 Screw List 118
4.2 Disassembly Flow 119
4.2.1 Removing the Housing 120
4.2.1.1 Panel Unit Removal 120
4.2.1.2 Paper Set Lever Removal 122
4.2.1.3 H Top Cover Removal 123
4.2.1.4 R Side Cover Removal 124
4.2.1.5 L Side Cover Removal 124
4.2.1.6 I/C Holder Cover Removal 125
4.2.1.7 Rear Cover Removal 126
4.2.1.8 Paper Guide L Removal 128
4.2.1.9 Roll Paper Cover Removal 130
4.2.1.10 Front Cover Removal 130
4.2.1.11 Removing Paper Guide U 131
4.2.2 Circuit Board Removal 133
4.2.2.1 Power Board Removal 133
4.2.2.2 HJFK / Dummy Board Removal 134
4.2.2.3 C362MAIN Board Removal 135
4.2.2.4 CSIC Board Removal. 137
4.2.2.5 C362DRV Board Removal 138
4.2.2.6 P/S Fan Removal 141
4.2.3 Printer Mechanism Disassembly 142
4.2.3.1 Replacing the Waste Ink Unit 143
4.2.3.2 Removing the Suction Fans 146
4.2.3.3 Replacing the Printheads 151
4.2.3.4 Removing the Cutter and Cutter unit 158
4.2.3.5 Removing the CR Encoder Sensor 160
4.2.3.6 Removing the P_Edge Sensor 160
4.2.3.7 Removing the Ink Cartridge Holder & Slots 161
4.2.3.8 Removing the CR Motor / Pulley ASSY 163
4.2.3.9 Removing the PF Motor ASSY 164
4.2.3.10 Removing the PF Encoder 166
4.2.3.11 Removing the Cleaning Unit 167
4.2.3.12 Removing Flushing Box 170
4.2.3.13 Removing Dot Missing Detector 171
4.2.3.14 Removing the Suction Control Motor 173
4.2.3.15 Removing the Ink Pump ASSY 173
4.2.3.16 Removing the T Fence (Scale 180a) 174
4.2.3.17 Removing the Paper Hold Solenoid 175
4.2.3.18 Removing the HEAD_SLIDE Sensor ASSY 177
4.2.3.19 Removing the PG Motor / Drive Gear 177
4.2.3.20 Removing the CR_HP Sensor 179
4.2.3.21 Removing the Paper Release Sensor 181
4.2.3.22 Removing the P_FRONT Sensor ASSY 181
4.2.3.23 Removing the P_REAR Sensor ASSY 183
4.2.3.24 Removing the Front Cover Sensor ASSY 183
4.2.3.25 Removing the I/C Holder Cover Sensor ASSY 184
4.2.3.26 Removing the P_THICK Sensor 185
5.1 Adjustment Outline 188
5.1.1 Precautions 188
5.1.2 Adjustment Tools 188
5.1.3 Adjustment Items 190
5.2 Adjustment Steps 191
5.2.1 Parameter Backup 191
5.2.2 Firmware Upload 193
5.2.3 Mechanism Adjustment 194
5.2.3.1 CR steal belt tension adjustment 195
5.2.3.2 PF timing belt tension adjustment 197
5.2.3.3 P_THICK sensor fixing bracket adjustment 197
5.2.3.4 Cutter position adjustment 198
5.2.3.5 Front cover sensor adjustment 199
5.2.3.6 Slide idler gear / Slide motor fixing plate adjustment 199
5.2.3.7 T fence and CR encoder position adjustment 200
5.2.3.8 Head slant adjustment 200
5.2.3.9 Offset adjustment for dot missing detector 201
5.2.3.10 P_Front/Rear/Edge sensor adjustment 201
5.2.3.11 Paper feeding adjustment 203
5.2.3.12 Cutter Pressure Adjustment 206
5.2.4 Program, User data install 207
5.2.5 USB-ID backup 207
5.3 Self-Diagnostics 208
5.3.1 Start-up procedure 213
5.3.2 Button operation during the Self-Diagnostics 214
5.3.2.1 Top menu 214
5.3.3 Test 215
5.3.3.1 Test menu sequence 215

5.3.3.2 Version display 216
5.3.3.3 Panel 217
5.3.3.4 Sensor 217
5.3.3.5 Encoder 218
5.3.3.6 Fan 219
5.3.3.7 Encode 219
5.3.3.8 D/A correction 221
5.3.3.9 Head signal shape 224
5.3.3.10 CSIC information display 224
5.3.3.11 Actuator 225
5.3.4 Adjustment 227
5.3.4.1 Adjustment menu 228
5.3.4.2 Paper Skew 228
5.3.4.3 Head Rank input 229
5.3.4.4 Head nozzle check 235
5.3.4.5 Offset Adjustment 237
5.3.4.6 Test report for dot missing detector 238
5.3.4.7 A13 slant adjustment 239
5.3.4.8 A123 slant adjustment 240
5.3.4.9 B123 slant adjustment 241
5.3.4.10 Bi-D adjustment 242
5.3.4.11 Head LR (Head gap) adjustment 244
5.3.4.12 Feed adjustment 246
5.3.4.13 Top and Bottom adjustment 247
5.3.4.14 Rear sensor position 248
5.3.4.15 Test pattern print 249
5.3.4.16 Print head cleaning 250
5.3.4.17 Counter clear 251
5.3.5 Cleaning 252
5.3.5.1 Normal cleaning KK0 252
5.3.5.2 Normal cleaning KK1 252
5.3.5.3 Normal cleaning KK2 252
5.3.5.4 Initial ink charge 252
5.3.6 Print 253
5.3.6.1 Check pattern 254
5.3.6.2 254
5.3.7 Parameter 254
5.3.7.1 Initialize the parameter 255
5.3.7.2 Update parameter 259
5.3.7.3 Parameter display 264
5.3.8 Reliability Test 264
5.3.8.1 CR Motor 266
5.3.8.2 PF Motor 267
5.3.8.3 CR + PF Motor 268
5.3.8.4 Cutter 269
5.3.8.5 Head Up / Down 270
5.3.8.6 Head lock 271
5.3.8.7 Lever lock 271
5.3.8.8 Cleaning 272
5.3.8.9 Print 273
5.3.8.10 Shutter 273
5.3.8.11 Total reliability 274
5.3.8.12 Life confirmation 275

6.1 General Maintenance Issues 277
6.1.1 Periodic Maintenance Items 278
6.1.2 Product Life Information 278
6.1.3 Printing output at the time of maintenance 279

6.2 Maintenance inspection items 282

7.1 Wiring Diagrams 290

7.2 Parts Reference List 292

7.3 Exploded View Diagram 296

7.4 Component Layout 308

7.5 Circuit Diagram 313

CHAPTER

1

PRODUCT DESCRIPTION

1.1 Features

The EPSON Stylus Pro 10000/10000CF is the ultra high picture quality B0+ size supported large size full collar ink jet printer that applied Epson original photograph mach jet technology. The EPSON Stylus Pro 10000/10000CF provides the following major features and more.

☐ Large Format
Max. 44" paper width, B0+ size supported

☐ High-speed throughput
There is not case print speed relys on the performance of the host computer largely, to be equipped with standard the HJFK board.

Table 1-1. Throughput Speed

EPSON media	Quality	Resolution	Mode	Throughput (A0 printing time)
Plain Paper	Speed	360x360dpi	Bi-D MF, 240cps	4 min.
Semigloss Photo Paper	Speed	720x360dpi	Bi-D FOL, 300cps	6 min.
	Quality	720x720dpi	Bi-D FOL, 300cps	10 min.
	Adv. Photo	1440x720dpi	Bi-D 4Pass, 300cps	19 min.

☐ High quality
High image quality with 6-color ink, 1440X720dpi, and minimum 5pl various layers.
High image quality and color reproduction same level as Stylus Photo 1200/ Stylus Color 5500.

☐ Low running cost
Independent for each color and large capacity 500ml ink cartridge.

☐ Various Paper Handling
Support various media. All media is compatible with Stylus Pro 9000 and Stylus Pro9500.
Double roll paper holders
Automatic roll paper cutter, manual cutter
Automatic loading (cut sheet)

☐ Compatibility with Stylus Pro 9000/ Stylus Pro 7000/ Stylus Pro 7500
Commands are upper compatible with Stylus Pro 9000 / Stylus Pro 9500 / Stylus Pro 7000 / Stylus Pro 7500

☐ The latest RIP technology

- ■ CPSI Pro software RIP

1.1.1 Consumable Products & Options

Table 1-2. Consumable products & Options

Name	Code	Product
Ink cartridges for Stylus Pro 10000	T499011 T502011 T501011 T500011 T504011 T503011	Black Ink Cyan Ink Magenta Ink Yellow Ink Light Cyan Ink Light Magenta Ink
Ink cartridges for Stylus Pro 10000CF	T511011 T512011 T513011 T512011 T516011 T515011	Black Ink Cyan Ink Magenta Ink Yellow Ink Light Cyan Ink Light Magenta Ink
Stand	C844022	Optional stand
Paper cutter blade	C815131	Consumable item
Roll Feed Spindle 2”	C811092	For two-inch diameter roll paper
Roll Feed Spindle 3”	C811102	For three-inch diameter roll paper
Glossy Photo Paper	S041225	610mm (24 in.) wide/20.7m long
Semigloss Photo Roll Paper	S041223	24 in wide/25m long
Presentation Matte Roll Paper	S041220	24 in wide/25m long
Photo Quality Ink Jet Paper	S041079 S041068/S041045 S041069/S041043 S041070/S041044	A2 A3 A3 Wide/B B
Photo Paper	S041142 S041143 S041156	A3 A3 Wide/B B
Photo Quality Glossy Film	S041073 S041074 S041075	A3 A3 Wide/B B
Rip Station 5100 PS Server Series II	EAI - C850092 Other - C850093	Fiery Adobe® PostScript® 3™ Server
Software RIP (CPSI Pro)		Software RIP (CPSI Pro)
Multi-protocol Ethernet interface card	C82362✶	Type-B 10Base-T
100Mbps Multi-protocol Ethernet interface card	C82363✶	Type-B 100Base-T
IEEE 1394 interface card	C82372✶	IEEE 1394 interface card

Note: Signifies a number that varies by market.

1.2 Specifications

1.2.1 Print Specifications

- Printing : Inkjet
- Nozzle configuration
  - Black - 180 nozzles
  - Color - 900 nozzles (cyan, magenta, yellow, light cyan, light magenta, 180 nozzles each)
- Print direction : Bi-direction (high-speed return, high-speed skip only)
- Print Speed and Printable Area
  - Character mode

    Character quality : high quality

    Character pitch : 10cpi (Pica)

    Printable area : 437 characters

    Printing speed : 240 cps
  - Graphic mode

Table 1-3. Print Area and Speed

Horizontal resolution (dpi)	Printable area	Max. printable dots	Speed
360	43.78 inch	15762	24IPS/FOL
720	43.78 inch	31524	30IPS/FOL
1440	43.78 inch	63048	30IPS/4pass

1.2.2 Character Specifications

- Character code: English several character expansion graphics(PC437) Multilingual(PC850)
- Type style: an EPSON original type style

  English several character Courier
- Control code:
  - ESC/P Raster
  - ESC/P3

    Not mention to the users' manual.

1.2.3 Paper Feed

- Paper feeding : Friction feed
- Line spacing : 1/6" or programmable at 1/720"
- Paper path : Roll paper/manual
- Feed speed : 215+/-10ms (6.35mm paper feed, except front rush, back rush & hold time)

1.2.4 Paper

1.2.4.1 Roll Paper

- Specifications

  The printer accepts following plain paper and EPSON special paper. It is not assured feeding and print quality with any other paper except them.
  - Paper Size

    2"core: 210~1118mm (W) x ~45m (H) (within roll size)

    3"core: 210~1118mm (W) x ~202m (H) (within roll size)
  - Roll Size

    2"core: 103mm ext. diameter maximum for 2 roll setting

    3"core: 150mm ext. diameter maximum for 1 roll setting
  - Thickness

    0.08~0.5mm

NOTE: *No wrinkle, no fuzz, no tear, no fold with paper*
If 3" core is used, exclusive option (roll paper spindle 3") is necessary

☐ Plain paper
It is assured feeding only with following specifications.

- Paper Size
  2"core: 210~1118mm (W) x ~45m (H) (within roll size)
  3"core: 210~1118mm (W) x ~202m (H) (within roll size)
- Roll Size
  2"core: 103mm ext. diameter maximum for 2 roll setting
  3"core: 150mm ext. diameter maximum for 1 roll setting
- Thickness
  0.08~0.11mm
- Weight
  64~90gf/m2
- Type
  Plain paper
  Recycle paper

NOTE: *Paper should have no wrinkles, tears, or folds and the surface should be smooth.*
The force to remove the end of the roll paper from the core should be between 300gf and 2000gf
If 3" core is used, a product-exclusive option (roll paper spindle 3") is necessary.
It is used under normal condition (temperature 15°C~25°C, humidity 40%~60%RH)
Roll paper can be printed before paper come out of the core.
Reference: Remaining paper length when roll paper come out of the core 40 cm approx. (TBD) for upper core, 30 cm approx. (TBD) for lower core
2" core can be set 2 rolls at the same time.
3" core cannot be set 2 rolls at the same time. (One 2" core roll and one 3" core roll can be set at the same time.)

1.2.4.2 Sheet

☐ Specifications
The printer accepts following plain paper and special paper. It is not assured feeding and print quality with any other paper except them.

- Paper Size : Following list

Table 1-4. Supported Cut-Sheet Paper

Paper Size	Size (H x W)	Paper Size	Size (H x W)
B0+	1118 x 1580mm	A2	420mm x 594mm
B0	1030 x 1456mm	A3+	329mm x 483mm
B1	728 x 1030m	A3	297mm x 420mm
B2	515mm x 728mm	A4	210 x 297mm
B3	364 x 515mm	US E	34 x 44"
A0+	914 x 1292mm	US D	22 x 34"
A0	841 x 1189mm	US C	17 x 22"
A1+	24 x 36"	US B	11 x 17"
A1	594mm x 841mm	Letter	8.5" x 11inch

- Thickness
  0.08~1.5mm (paper length; 279mm~728mm)
  0.08~0.5mm (paper length; 728mm~1580mm)

NOTE: *Paper should have no wrinkles, tears, or folds and the surface should be smooth.*
0.08~1.5mm paper thickness is supported for long-edge insertion.

☐ Plain paper
It is assured feeding only with following specifications.

- Paper Size : Following list

Table 1-5. Supported Cut-Sheet Paper

Paper Size	Size (H x W)	Paper Size	Size (H x W)
B0+	1118 x 1580mm	A2	420mm x 594mm
B0	1030 x 1456mm	A3+	329mm x 483mm
B1	728 x 1030m	A3	297mm x 420mm
B2	515mm x 728mm	A4	210 x 297mm
B3	364 x 515mm	US E	34 x 44"
A0+	914 x 1292mm	US D	22 x 34"
A0	841 x 1189mm	US C	17 x 22"
A1+	24 x 36"	US B	11 x 17"
A1	594mm x 841mm	Letter	8.5" x 11inch

- Thickness
  0.08~0.11mm
- Weight
  64~90gf/m2
- Type
  Plain paper
  Recycle paper

NOTE: *Paper is fed short-edge first.*
Paper should have no wrinkles, tears, or folds and the surface should be smooth.
It is used under normal condition (temperature 15°C~25°C, humidity 40%~60%RH)

☐ Special paper

Table 1-6. Exclusive paper

Supporting Media List	Media Size														
	Sheet									Roll Paper					
	A4	LTR	A3	B	Super A3/B	A2	C	B2	B1	210mm	329mm	22"	24"	36"	44"
<<Dye >>	210x297	216x276	297x420	279x432	329x483	420x594	432x559	515x728	728x1030	210	329	560	610	914	1118
Photo Quality Ink Jet Paper	@	@	@	@	@	@	@	-	-	-	-	-	-	-	-
Photo Quality Glossy Film	@	@	@	@	@	-	-	-	-	-	-	-	-	-	-
Photo Paper	@	@	@	@	@	-	-	-	-	#	#	-	-	-	-
Glossy Photo Paper (except US) Glossy Paper - Heavy Weight (US)	-	-	-	-	-	-	-	-	-	-	-	-	O	O	O
Semigloss Photo Pape (except US)r Semigloss Paper - Heavy Weight (US)	-	-	-	-	-	-	-	-	-	-	-	-	O	O	O
Presentation Matte Paper	-	-	-	-	-	-	-	-	-	-	-	-	O	O	O
Glossy Film	-	-	-	-	-	-	-	-	-	-	-	-	O	O	O
Heavyweight Polyester Banner	-	-	-	-	-	-	-	-	-	-	-	-	O	O	O
Poster Board-Semigloss	-	-	-	-	-	-	-	O	O	-	-	-	-	-	-
DuPont/EPSON Commercial Proofing Paper	-	-	-	-	-	-	-	-	-	-	-	-	O	O	-
DuPont/EPSON Commercial Matte Proofing Paper	-	-	-	-	-	-	-	-	-	-	-	-	O	O	-
DuPont/EPSON Publication Proofing Paper	-	-	-	-	-	-	-	-	-	-	-	-	O	O	-
<<Pigment >>															
Doubleweight Matte Paper	-	-	-	-	-	-	-	-	-	-	-	-	O	O	O
Glossy Paper-Photo Weight	@	@	-	-	@	-	-	-	-	-	-	O	-	-	O
Glossy Film	-	-	-	-	-	-	-	-	-	-	-	-	O	O	O
Premium Glossy Photo Paper	-	-	-	-	-	-	-	-	-	-	-	-	O	O	O

Table 1-6. Exclusive paper

Premium Semigloss Photo Paper	-	-	-	-	-	-	-	O	O	-	-	-	O	O	O
Photo Grade Glossy Paper(except US) Photo Glossy Paper (US)	-	-	-	-	-	-	-	-	-	-	-	-	O	O	O
Photo Grade Semigloss Paper (except US) Photo Semigloss Paper (US)	-	-	-	-	-	-	-	-	-	-	-	-	O	O	O
Premium Luster Photo Paper	-	-	-	-	-	-	-	-	-	-	-	-	O	O	O
Watercolor Paper-Radiant White	-	-	-	-	O	-	-	-	-	-	-	-	O	O	O
Smooth Fine Art Paper (Roll paper)	-	-	-	-	-	-	-	-	-	-	-	-	O	O	O
Smooth Fine Art Paper (Sheet)	-	-	-	-	-	-	-	24"x30" O	36"x44" O	-	-	-	-	-	-
Textured Fine Art Paper (Roll paper)	-	-	-	-	-	-	-	-	-	-	-	-	O	O	O
Textured Fine Art Paper (Sheet)	-	-	-	-	-	-	-	24"x30" O	36"x44" O	-	-	-	-	-	-
Backlight film	-	-	-	-	-	-	-	-	-	-	-	-	O	O	O
Heavyweight Polyester Banner	-	-	-	-	-	-	-	-	-	-	-	-	O	O	O
Synthetic Paper	-	-	-	-	-	-	-	-	-	-	-	-	O	O	O
Adhesive Synthetic Paper	-	-	-	-	-	-	-	-	-	-	-	-	O	O	O
Tyvek	-	-	-	-	-	-	-	-	-	-	-	-	O	O	O
Adhesive Vinyl	-	-	-	-	-	-	-	-	-	-	-	-	O	O	O
DuPont/EPSON Semigloss Proofing Paper-A	-	-	-	-	-	-	-	-	-	-	-	O	-	-	O

O assured

# added media (Media venders support basically.)

@ assured only for paper feeding

1.2.4.3 Printable area

The list and figure shown below.

Table 1-7.

Heading	Roll Paper	Cut Sheets
PW (width)	210 ~1118mm	210 ~ 1118mm
PL (length)	Max. 202mm	279~1580mm
LM (left margin)	3mm/15mm*1	3mm
RM(Right lmargin)	3mm/15mm*1	3mm
TM (top margin)	3mm/15mm*1	3mm
BM (bottom)	3mm/15mm*1	14mm

-The printer detects paper width when paper is set. (If Set paper width detection is OFF, it doesn’t detect paper width.)

-It doesn’t print the image beyond printable area specified with paper size setting or paper width detection. (It may print on the platen if Set paper width detection is OFF.)

-Margins of roll paper can be changed with the panel as following;

Top/bottom 15mm, left/right 3mm

Top/bottom/left/right 3mm

Top/bottom/left/right 15mm

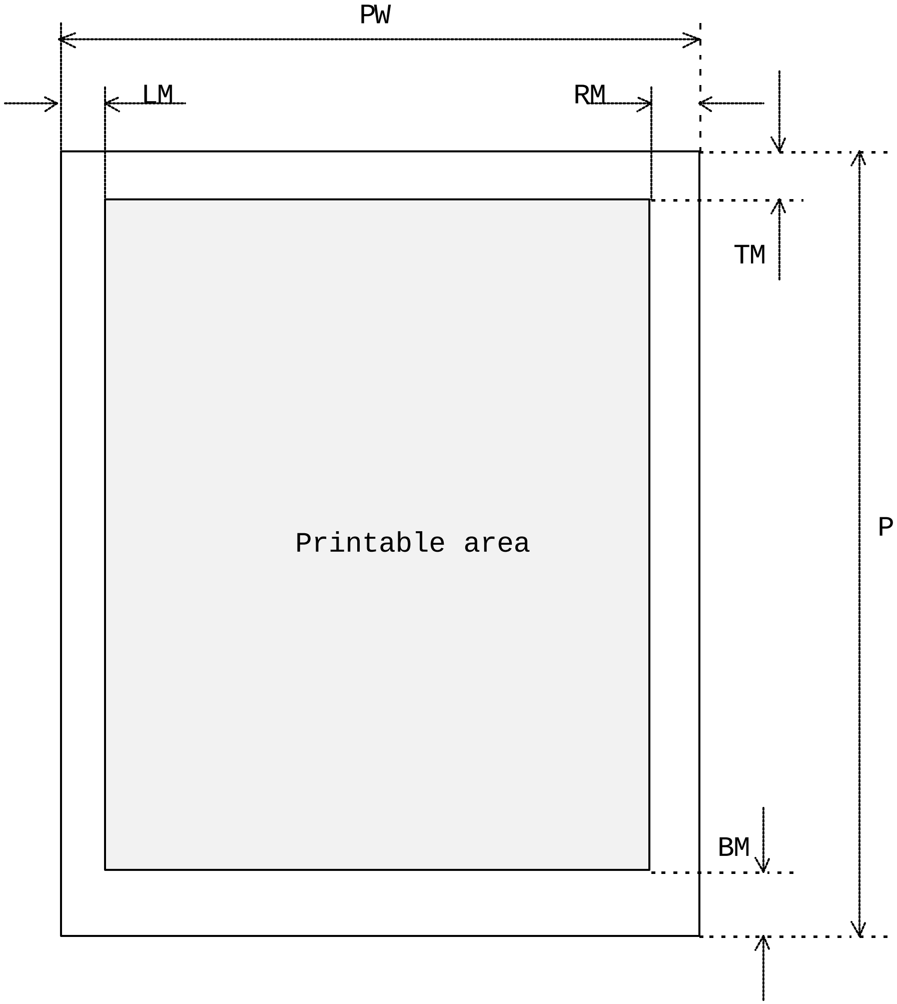


Figure 1-1. Printable Area

1.2.5 Paper set lever

- When the paper set lever is pulled to the front, paper is released.
- When the paper set lever is pushed down to the back, paper is fixed, and it becomes print ready.
- The paper set lever cannot be released during printing operation.

1.2.6 Ink Cartridge

☐ Pigment / Dye ink cartridge

Type : Exclusive ink cartridge
Dimension : 168mm (W) x 344mm (D) x 30.3mm (H)
*33.3mm (H) including guide ribs
Ink capacity : 500ml
Total weight : 860g (without case, ink weight 535Å}25g)
Effective ink : more than 485g
Color : Black, magenta, light magenta, cyan, light cyan, yellow
Environment condition : 10°C~40°C (temperature), 5%~85% (humidity)
no dew condensation

Storage temperature :
packed: -30°C~40°C (within 1 month when 40°C)
unpacked: -20°C~40°C (within 1 month when 40°C, within 120 hours when 60°C)

Ink life :
pigment: 2 years from production date / 6 months after open
dye: 2 years from production date / 2 years after open

Table 1-8. Ink Cartridge Specifications

Situation	Temperature	Notes
Transporting	-30~60°C	• Less than a month at 40°C • Less than 120 hours at 60°C
Storage	-30~40°C	Less than a month at 40°C
Installed	-20~40°C	Less than a month at 40°C

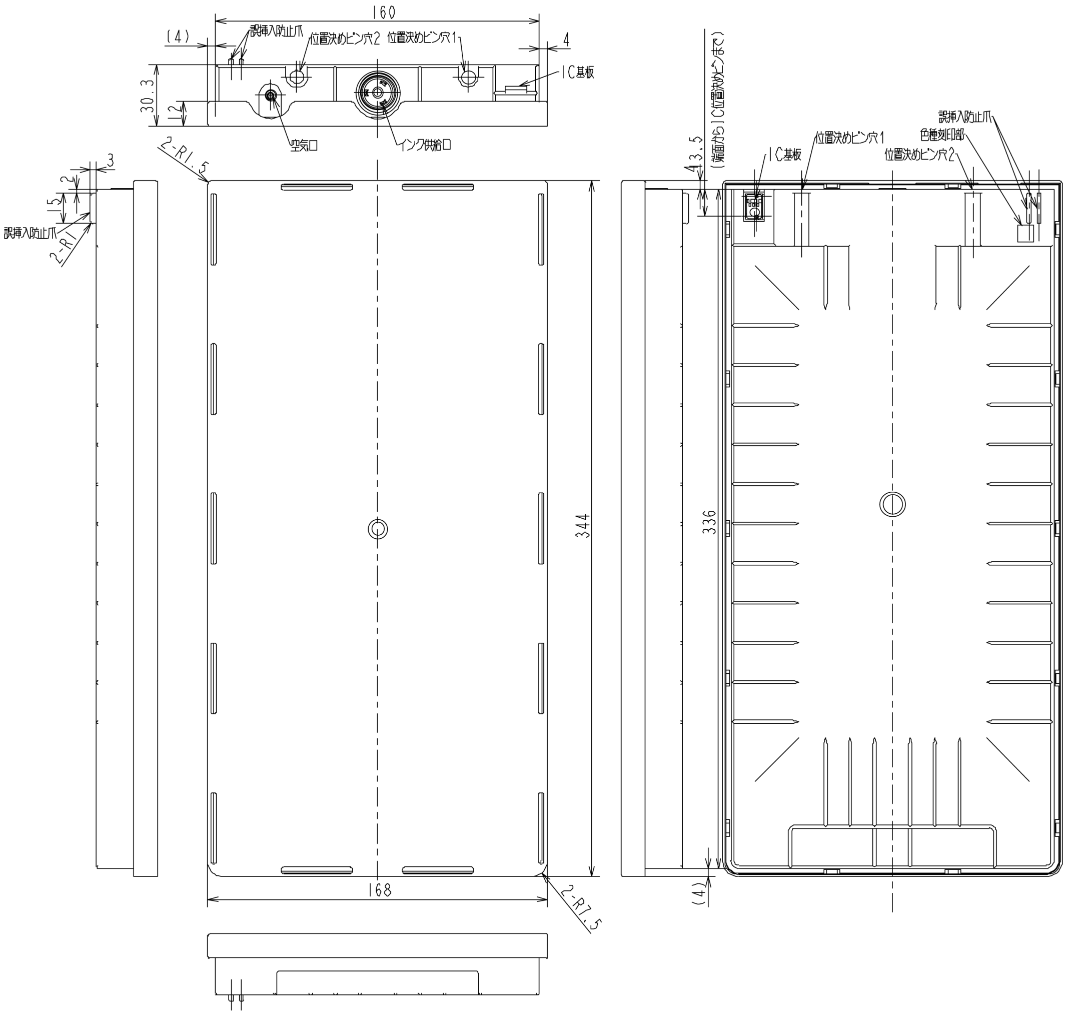

160
(4)
4
誤挿入防止爪
位置決めピン穴2
位置決めピン穴1
IC基板
30.3
12
空気口
インク供給口
2-R1.5
3
2
15
誤挿入防止爪
2-R1
344
168
2-R7.5
（端面からIC位置決めピンまで）
43.5
IC基板
位置決めピン穴1
誤挿入防止爪
色種刻印部
位置決めピン穴2
336
(4)

Figure 1-2. Ink Cartridge Physical Specifications 500ml

1.2.7 Electrical specification

Rated voltage : AC 100 ~ 240V

Input voltage range : AC 90 ~ 264V

Rated frequency range : 50 ~ 60Hz

Input frequency range : 49 ~ 61Hz

Rated current : 1.4A/100 ~ 120V, 0.7A/220 ~ 240V

Power consumption : less than 130W for operation status

less than 30W for waiting status (shift time:14min. 30sec.)

Energy star compliant

Insulation resistance : more than 10M ohms

(between AC line and chassis, DC 500V)

Dielectric strength : AC1.0kV rms 1min. or AC1.2kV rms 1sec.

(between AC line and chassis)

Leakage : less than 0.25mA

1.2.8 Safety approvals

- ☐ 120Vversion
  - ■ Safety standard
    : UL1950
    : CSA22.2 No.950
    : FDA
  - ■ EMI
    : FCC part15 subpart B class A
    : CSA C108.8 class A
- ☐ 220-240V version
  - ■ Safety standards
    : EN 60950(VDE)/EN 60825-1
  - ■ EMI
    : EN 55022(CISPR Pub.22) class A
    : AS/NZS 3548 class A

1.2.9 Reliability

Total print volume : 20,000 pages (B0, 720x360 FOL,Bi-D)

Print head life : 28 billion shot / nozzle

Cutter life : Approx. 2,000 sheets (B0+)

Approx. 1,000 sheets (B0+) for film

Maintenance parts : Ink pad / Maintenance unit/Auto print head optimization system

(exchange 3 times within printer life)

Steel belt / FFC / Tube/Head unit/CR motor

(exchange per 4,800,000 pass)

RTC backup battery

(about 8 years)

1.2.10 Environmental Conditions

1.2.10.1 Temperature/Humidity

See the following table.

Table 1-9. Environmental Conditions

Condition	Temperature	Humidity	Notes
Operating	10~35°C (50~95°F)	20~80%	• Less than a month at 40°C (104°F) • Less than 120 hours at 60°C (140°F) • With no freezing
Storage	-20~40°C (-4~104°F)	20~85%	
Transportation	-20~60°C (-4~140°F)	5-85%	

Notes:

1) When storing the printer, make sure the printheads are in the home (capped) position. If necessary switch power on, wait for the printheads to move to the home position, and then switch power off.

2) Before transporting the printer, remove the ink cartridges and turn the ink valves screws to the closed position. Also make sure the printheads are in the home, capped, position. After transporting the printer, install new ink cartridges.

3) If the temperature drops below -15°C (5°F), the ink in the cartridges and printheads freezes. The ink thaws completely after three hours at 25°C (77°F).

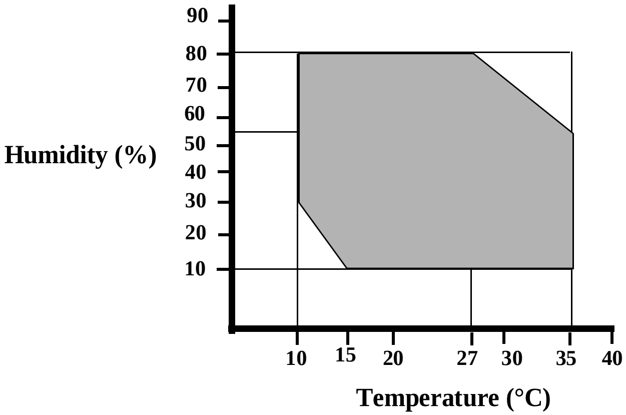


Figure 1-3. Print Temperature and Humidity

1.2.10.2 Vibration & Shock

See the following table.

Table 1-10. Vibration and Shock

Condition	Vibration Resistance	Shock Resistance	Notes
Operating	0.15G 10~55Hz	1G maximum 1ms	X/Y/Z directions
Storage	0.5G 10~55Hz	2G maximum 2ms	

Notes:

* Make sure the printhead is capped during transportation and storage. To cap the printhead, turn the power on (with ink cartridges installed) and turn the power off when the printheads are capped.

* To thaw frozen ink in the printer or cartridge, leave the printer out at a temperature of 25°C (77°F) for approximately three hours.

1.2.11 Controller

CPU:	Hitachi SH7709A, 120MHz
Code ROM:	2MB
Font ROM:	None
RAM:	128MB (fixed)
Interfaces:	IEEE1284 interface USB1.1 Type B interface (2 expansion ports)
Operating System:	Hitachi HI7700 (μITRON 3.0 compatible)

1.2.12 Cutting Specification

There are two methods to cut a roll paper, automatic and manual cut.

1.2.12.1 Automatic cut of roll media

Automatic cut as shown in the following condition could only be performed on the approved media.

When cutting sequence is performed on the prohibited media, it may damage the print heads.

- Mechanical condition

*Distance between cut position and cutter mark: L1=93.9mm

*Minimum length of 3 step cutting: L1=130mm

*Minimum length of 4 step cutting L3 = 130mm

*The fed distance from the cut position is defined as (L+), when media is fed forward during print or by feed operation.

* The back fed distance from the cut position is defined as (L-), when media is fed backwards by the reverse feeding operation.

* L1 >= L3 is mandatory.

Table 1-11. Cut condition and Cut method

Cut condition	Cut method
Initial cut(The manual cut done by pressing "Cut/Eject" button, after pulling down the paper set lever when media is at above the top edge sensor.	Paper is fed for L1 length and cut in 4 steps.
Cut caused by the completion of the print, or by the reset during print.	Cut in 3 steps, but in case if (L+) is shorter than L2, this cut is done after feeding L2 length.
Manual cut during print	Cut in 3 steps, but in case if (L+) is shorter than L2, this cut is done after feeding L2 length.
Manual cut in the normal waiting status	Paper is fed for L1 length and cut in 4 steps.
Manual cut after forward feed	Paper is fed for L1 length and cut in 4 steps.
Manual cut when top edge of paper is existing close to the rear side, behind the cut position.	If L1-(L-)<L3, feed L3+(L-) and cut in 4 steps. L1-(L-)>=3 never occurs.
Manual cut by operating automatic cut ON, after printing with automatic cut OFF.	If L1-(L-)>=L2, feed media L1 and cut in 3 steps. If L1-(L-)<L2, feed media(L2-(L+))and cut in 3 steps.

Table 1-11. Cut condition and Cut method

1.2.12.2 Manual cut of roll paper

Manual cut is possible by the following orders. Manual cut should always be done for the paper which are not approved to be cut automatically, because the head may be damaged when automatic cut is performed with such ones.

1. Select "Roll Cutter Off" on the panel.
2. Press "Cut/ Eject" button.
3. Paper is automatically fed towards the cutter guide, and printer becomes Off-line. "Pause" is indicated on the LCD panel.
4. Adjust cutting position with "Paper Feed +/-" button if necessary.
5. User slides the cutter among the cutter guide to cut the paper.
6. After the cut was performed, release pause status by pressing "Pause" button. Then paper is fed backwards and printer becomes on-line.

NOTE: *Use the manual cutter attached with the printer.*

1.2.13 Physical Specification

- ☐ Dimensions of Unit (mm) : 1865(W) x 1225(H) x 710(D)
- ☐ Weight : 132Kg(including the stand)

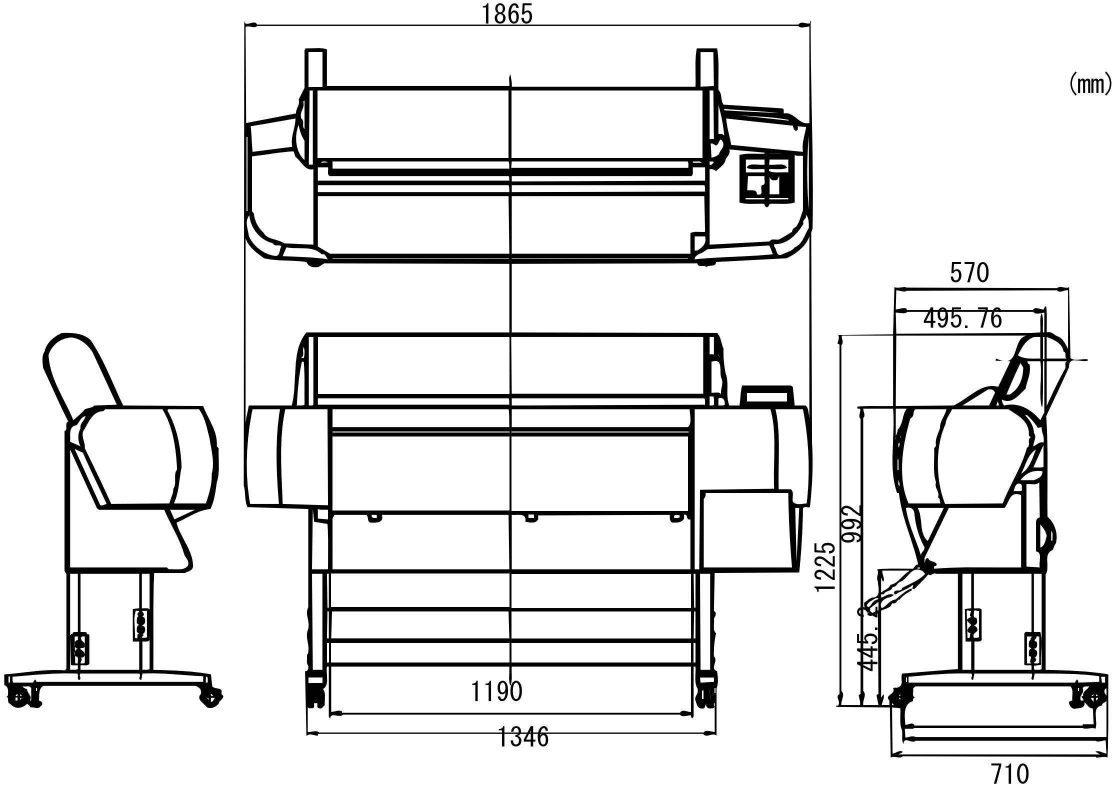

1865
(mm)
570
495.76
1225
992
445.2
1190
1346
710

Figure 1-4. Dimensions of Unit 1

1.3 Interfaces

The EPSON Stylus Pro 10000/10000CF is equipped with parallel and USB interfaces as well as an expansion slot for an optional Type-B interface. This section provides information on each of these interfaces.

1.3.1 Parallel Interface

COMPATIBILITY MODE

Table 1-12. Parallel Interface Specifications

Item	Description
Transmission mode	8-bit parallel, IEEE-1284 compatibility mode
Synchronization	By STROBE pulse
Handshaking	By BUSY and $\overline{\text{ACKNLG}}$ signal
Logic Level	TTL compatible level (IEEE-1284 Level 1 device)
Connector	57-30360 (Amphenol) or equivalent
Note: Use a twisted-pair cable that is as short as possible.	

Connector pin assignment and signals are shown below.

Table 1-13. Connector Pin Assignments and signals (Compatibility Mode)

Pin No.	Signal Name	Return GND Pin	In/Out*	Functional Description
1	-STROBE	19	In	Data reception pulse. Data is read at the falling edge of this pules.
2	DATA0	20	In	The DATA0 through DATA7 signals represent data bits 0 to7, respectively. Each signal is at high level when data is logical 1 and low level when data is logical 0.
3	DATA1	21	In	
4	DATA2	22	In	
5	DATA3	23	In	
6	DATA4	24	In	
7	DATA5	25	In	
8	DATA6	26	In	
9	DATA7	27	In	
10	-ACKNLG	28	Out	This signal is a negative pulse indicating that the printer can again accept data.
11	BUSY	29	Out	A high signal indicates that the printer cannot receive data.
12	PE	28	Out	A high signal indicates paper-out error.
13	SLCT	28	Out	Always at high level when the printer is powered on.
14	-AFXT	30	In	Not used
31	-INIT	30	In	The falling edge of a negative pulse or a low signal on this line causes the printer to initialize. Minimum 50 us pulse is necessary.
32	-ERROR	29	Out	A low signal indicates printer error condition.
36	-SLIN	30	In	Not used
18	Logic H	-	Out	Pulled up to +5 V via 3.9 K ohm resistor.
35	+5V	-	Out	Pulled up to +5 V via 1.0 K ohm resistor.
17	Chassis GND	-	-	Chassis GND.
16,33,19-30	GND	-	-	Signal GND.
15,34	NC	-	-	Not connected

* In/Out refers to the direction of signal flow from the printer’s point of view.

☐ Data Transmission Timing

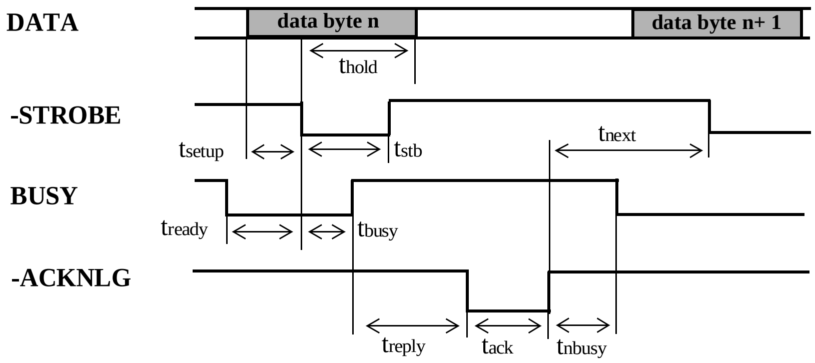


Figure 1-5. Data Transmission Timing

Table 1-14. Data transmission times

Parameter	Minimum	Maximum
tsetup	500 ns	-
thold	500 ns	-
tstb	500 ns	-
tready	0	-
tbusy	-	500 ns
tt-out*	-	120 ns
tt-in**	-	200 ns
treply	0	-
tack	Typical 2 us	
tnbusy	0	-
tnext	0	-

* Rise and fall time of every output signal

** Rise and fall time of every input signal

NIBBLE MODE

Table 1-15. Transmission Specifications

	Description
Transmission mode	IEEE-1284 nibble mode
Synchronization	Refer to IEEE-1284 specification
Handshaking	Refer to IEEE-1284 specification
Signal level	TTL compatible (IEEE-1284 level 1 device)
Adaptable connector	57-30360 (Amphenol) or equivalent
Data trans. timing	Refer to IEEE-1284 specification
Extensibility request	The printer responds affirmatively when the extensibility request values are 00H or 04H: 00H: Request Nibble Mode Reverse Channel Transfer 04H: Request Device ID; Return Data Using Nibble Mode Reverse Channel Transfer
Device ID	The printer returns the following strings when the device ID is requested: <00H><4EH> MFG: EPSON CMD: ESCPL2, BDC MDL: Stylus[SP]Pro[SP]7000 CLS: PRINTER DES: EPSON[SP]Stylus[SP]Pro{SP]7000 ***Note:*** [00H] denotes a hexadecimal value of zero MDL values depend on the EEPROM setting

Table 1-16. Connector Pin Assignments - Nibble Mode

Pin No.	Signal Name	Return GND Pin	In/Out*	Functional Description
1	HostClk	19	In	Host clock signal.
2	DATA0	20	In	The DATA0 through DATA7 signals represent data bits 0 to7, respectively. Each signal is at high level when data is logical 1 and low level when data is logical 0.
3	DATA1	21	In	
4	DATA2	22	In	
5	DATA3	23	In	
6	DATA4	24	In	
7	DATA5	25	In	
8	DATA6	26	In	
9	DATA7	27	In	
10	PtrClk	28	Out	Printer clock signal.
11	PtrBusy / DataBit-3,7	29	Out	Printer busy signal and reverse channel transfer data bit 3 or 7.
12	AckDataReq / DataBit-2,6	28	Out	Acknowledge data request signal and reverse channel transfer data bit 2 or 6.
13	Xflag / DataBit-1,5	28	Out	X-flag signal and reverse channel transfer data bit 1 or 5.
14	HostBusy	30	In	In Host busy signal.
31	-INIT	30	In	Not used.
32	-DataAvail / DataBit-0,4	29	Out	Data available signal and reverse channel transfer data bit 0 or 4.
36	1284-Active	30	In	1284 active signal.
18	Logic-H	-	Out	Pulled up to +5 V via 3.9 K ohm resistor.
35	+5V	-	Out	Pulled up to +5 V via 1.0 K ohm resistor.
17	Chassis GND	-	-	Chassis GND.
16,33,19-30	GND	-	-	Signal GND.
15,34	NC	-	-	Not connected.

* In/Out refers to the direction of signal flow from the printer’s point of view.

ECP MODE

Table 1-17. Transmission Specifications

	Description
Transmission mode	IEEE-1284 ECP mode
Synchronization	Refer to IEEE-1284 specification
Handshaking	Refer to IEEE-1284 specification
Signal level	IEEE-1284 level 1 device
Adaptable connector	See forward channel
Data trans. timing	Refer to IEEE-1284 specification
Extensibility request	The printer responds affirmatively when the extensibility request values are 10H or 14H: 10H: Request ECP Mode Reverse Channel Transfer 14H: Request Device ID; Return Data Using ECP Mode Reverse Channel Transfer
Device ID	The printer returns the following strings when the device ID is requested: <00H><4EH> MFG: EPSON CMD: ESCPL2, BDC MDL: Stylus[SP]Pro[SP]7000 CLS: PRINTER DES: EPSON[SP]Stylus[SP]Pro{SP]7000 ***Note:*** [00H] denotes a hexadecimal value of zero MDL values depend on the EEPROM setting

Table 1-18. Connector Pin Assignments - ECP Mode

Pin No.	Signal Name	Return GND Pin	In/Out*	Functional Description
1	HostClk	19	In	In Data or address information are transferred from a host to a printer.
2	DATA0	20	In	The DATA0 through DATA7 signals represent data bits 0 to 7,respectively. Each signal is at high level when data is logical 1 and low level when data is logical 0. These signals are used to transfer the 1284 extensibility request values to the printer.
3	DATA1	21	In	
4	DATA2	22	In	
5	DATA3	23	In	
6	DATA4	24	In	
7	DATA5	25	In	
8	DATA6	26	In	
9	DATA7	27	In	
10	PeriphClk	28	Out	Data is transferred from a printer to a host.
11	PeriphAck	29	Out	A printer uses this signal for a flow control of forward direction. Also this signal offers the data bit 9 that use it to judge whether or not it is information command information or data to be output on the data signal of reverse direction.
12	nAckReverse	28	Out	A printer does drive to Low and approve nReverseRequest.
13	Xflag	28	Out	X-flag signal and reverse channel transfer data bit 1 or 5.
14	HostAck	30	In	A host uses this signal for a flow control of reverse direction. Also this signal offers the data bit 9 that use it to judge whether or not it is information command information or data to be output on the data signal of forward direction.
31	nReverseRequest	30	In	This signal is made a low, to change a channel toward reverse.
32	nPeriphRequest	29	Out	This signal uses to produce a host interrupt.
36	1284-Active 30	30	In	1284 active signal. "HIGH" in ECP mode
18	PeriphLogic-H	-	Out	Always "HIGH". Pulled up to +5 V via 3.9 K ohm resistor.
35	+5V	-	Out	Always "HIGH". Pulled up to +5 V via 1.0 K ohm resistor.
17	Chassis GND	-	-	Chassis GND.
16,33,19-30	GND	-	-	Signal GND.
15,34	NC	-	-	Not connected.

* In/Out refers to the direction of signal flow from the printer's point of view.

1.3.2 USB

Standard	:"Universal Serial Bus Specifications Revision 1.1" "Universal Serial Bus Device Class Definition for Printing Devices Version 1.1"
Bit rate	:12Mbps (Full speed device)
Data encoding	:NRZI
Adaptable connector	:USB series B
Suggested cable length	:2 meters

Table 1-19. USB connector pin assignments and signals

Pin no.	Signal name	In/Out	Description
1	VCC	-	Cable power, max. power consumption is 100mA
2	-Data	bi-directional	data
3	+Data	bi-directional	data, pull up to+3.3V via 1.5K ohm resistor
4	Ground	-	Cable ground

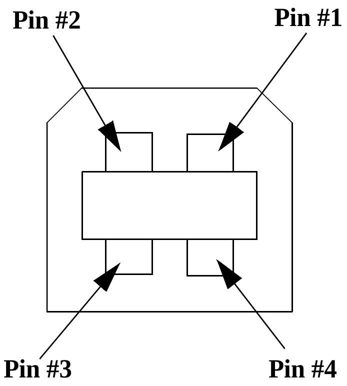


Figure 1-6. USB Pins

NOTE: *To use USB interface: set "PARA.I/F=COMPAT." in the Printer Settings Menu.*

1.3.3 TYPE-B Optional Interface

Type-B interface (level 2, 1200mA type) is supported.

Reply message (Case of using Type-B I/F card except above):

- Card in Type-B slot 1:
  Main type: MT48p,PW127cl10cpi,PRG(T0xxxx.yyyy.zzzz)rev,SPD0fast AP1200ma
  Product name: Stylus Pro 10000 (pigment: Stylus Pro 10000CF)
  Emulation type: ESCPL2-00
  Entity type: EPSONLQ2J
- Card in Type-B slot 2:
  Main type: MT48p,PW127cl10cpi,PRG(T0xxxx.yyyy.zzzz)rev, AP1200ma, SPD1fast
  Product name: Stylus Pro 10000 (pigment: Stylus Pro 10000CF)
  Emulation type: ESCPL2-00
  Entity type: EPSONLQ2J

1.3.4 Complement Item

PREVENTION HOSTS FROM DATA TRANSFER TIME-OUT

When data is received from the parallel interface or the type B interface while no error has occurred (including the pause condition), the printer receives data a rate of 2 byte/second while buffer free space is less than 16 kbytes in order to prevent host timeout.

When buffer free space is more than 32kbytes, the 2 byte/second receive rate is cleared, and receive is halted when free space reaches 16 bytes, and returns to the 2 byte/second rate when free space reaches 512 kbyte or more.

INTERFACE SELECTION

The printer has the parallel interface, the USB interface, the optional interface-1, and optional interface-2.

These interfaces are selected manually by the default setting mode or selected automatically.

- Manual selection

  One of 4 interfaces can be selected; the parallel interface, the USB interface, the optional interface-1, and optional interface-2.

- Automatic selection

  Select a interface which the printer received data first after power ON. If it passes 10 seconds after interruption of data receiving, it will be idle status (any interface is not selected) and will select a interface which the printer received data first.

- Interface state and interface selection

  When the parallel interface is not selected, the interface goes into the busy status.Only reverse communication can be done at this time.

  When the printer is initialized or returned to the idle state, the parallel interface becomes ready status, the USB interface becomes non NACK reply status, and the option interface resets OFF-LINE bit of Main Status Register (MNSTS).

  INIT signal on the parallel interface is not effective while that interface is not selected or nibble Mode, ECP Mode.

INITIALIZATION

There are three kinds of initialization method.

1. Power-on initialization
   This printer is initialized when turning the printer power on.
   When printer is initialized, following action is performed.
   (a) Initializes printer mechanism.
   (b) Clears input data buffer.
   (c) Clears print buffer.
   (d) Sets default values.
2. Software initialization
   The ESC @ command also initializes the printer.
   When printer is initialized, following action is performed.
   (a) Clears print buffer.
   (b) Sets default values.
3. Panel initialization
   This printer is initialized when pushing the Pause button more than 3 seconds, or printer recognized the -INIT signal.
   When printer is initialized, following action is performed.
   (a) Eject a paper. (If roll paper, it cuts paper skipping print part when Paper Source = Auto Cut, it doesn’t cut when Paper Source = Cutter Off with SelecType)
   (b) Cap the print head.
   (c) Clears input data buffer.
   (d) Clears print buffer.
   (e) Sets default values.

DEFAULT SETUP VALUES

Default setup values are as follows. The parameters for items which may be saved for panel setup, default setup, and remote commands are used as default values.

Page position	:	Current paper position as page start position
Line feed	:	1/6"
Right margin	:	437th character
Left margin	:	1st character
Character pitch	:	10 CPI
Print mode	:	Text mode (non-raster graphics mode)

1.4 Operating Panel

This section describes the operating panel, the buttons, the lights, and the way you make settings.

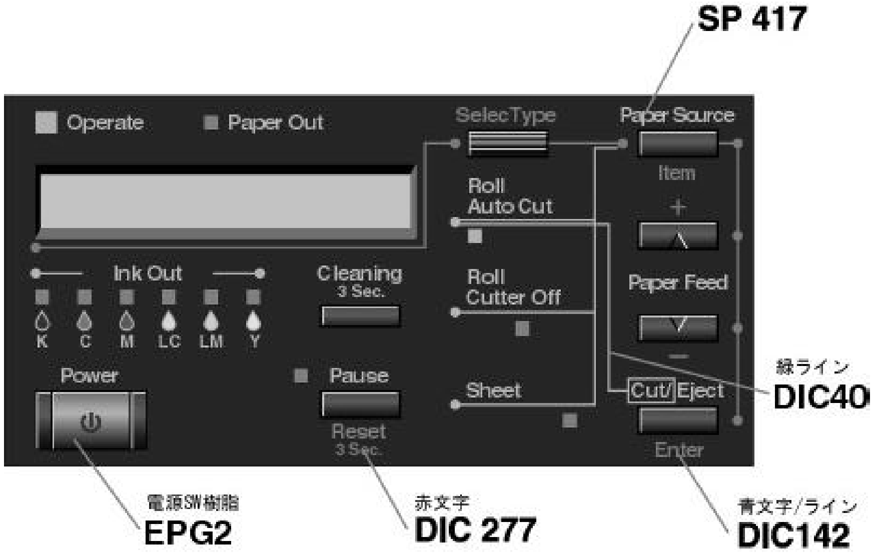

SP 417
Operate
Paper Out
SelecType
Paper Source
Item
Roll
Auto Cut
+
Roll
Cutter Off
Paper Feed
−
Ink Out
K
C
M
LC
LM
Y
Cleaning
3 Sec.
Power
Pause
Reset
3 Sec.
Sheet
Cut/Eject
Enter
緑ライン
DIC40
電源SW樹脂
EPG2
赤文字
DIC 277
青文字/ライン
DIC142

Figure 1-7. Operating Panel

BUTTONS AND FUNCTIONS

Each button on the operating panel and their functions are described below.

Table 1-20. Buttons and Functions

Button (Second function)	Function (Normal)	SelecType Function	Power-On Function
Power	Power on/off	N/A	N/A
Pause (Reset)	• Switch -pause/ready • Reset (press 3 seconds)	N/A	Maintenance Mode
SelecType	• Printing Printer status menu • Except above Selectype mode Cutter replace menu (press for 5 seconds)	Selection of SelecType menu (major categories)	N/A
Cut/Eject (Enter)	• Eject sheet*3. • Cut roll paper (Auto Cut)*3 • Feed roll paper to the manual cutting position (cutter OFF)*3.	Confirms and saves setup values	
Paper Feed ↑	Paper feed (reverse)*1	Increase setup value	
Paper Feed ↓	Paper feed (forward)*2	Decrease setup value	
Paper Source (Item)	Selects paper source	Selection of SelecType items (minor categories)	
Cleaning	Cleaning Cleans all heads (press for 3 seconds)	N/A	
Paper Source+ Eject+ Paper Feed ↓	N/A		Maintenance Mode 2
Paper Source+ Eject+ Cleaning			Firmware reload

Notes:

*1 : 1.27cm/second (5.0cps) paper feed for 2 seconds after the button is pressed. 12.7cm/second (50.0cps) paper feed if pressed for a further 2 seconds. Maximum feed of 20cm with one press of the button.

*2 : 1.27cm/second (5.0cps) paper feed for 2 seconds after the button is pressed. 12.7cm/second (50.0cps) paper feed if pressed for a further 2 seconds.

*3 : Interrupts ink drying and runs the specified operation.LED indicators

LEDS

Table 1-21. LED Indicator Lights

LED	Status	Condition
Operate	• On • Blink	• Printer power ON. • Printer processing data, or in power OFF sequence.
Paper Out	• On • Blink	• Paper out, end of roll, Paper mismatch error, paper set lever is released, or paper is thick for cleaning • Paper jam error, paper cutting error, paper not straight, paper check error, or problem with paper output (sheet)
Pause	• On • Blink	• Paused • Cleaning print head, or ink drying.
Ink Out Y	• On • Blink	• Yellow ink end, or dye/pigment yellow ink • Yellow ink low.
Ink Out LM	• On • Blink	• Light magenta ink end, or dye/pigment light magenta ink • Light magenta ink low.
Ink Out LC	• On • Blink	• Light cyan ink end, or dye/pigment light cyan ink • Light cyan ink low.
Ink Out M	• On • Blink	• Magenta ink end, or dye/pigment magenta ink • Magenta ink low.
Ink Out C	• On • Blink	• Cyan ink end, or dye/pigment cyan ink • Cyan ink low.
Ink Out K	• On • Blink	• Black ink end, or dye/pigment black ink • Black ink low.
Roll Auto Cut	• On • Blink	• Roll, Auto cut is selected. • Paper mismatch error.
Roll, Cutter Off	• On • Blink	• Roll, Cutter off is selected. • Paper mismatch error.
Sheet	• On • Blink	• Sheet is selected. • Paper mismatch error.

1.4.1 Indicator Status in Normal Mode

Table 1-22. Operate Indicator

Printer Status	Indicator
With power on and in any status other than those listed below.	On
While processing data and during power off sequence	Blink
Fatal error	Blink
Reset, timer IC reset/NVRAM clear	On

Table 1-23. Paper Out Indicator

Printer Status	Indicator
Out of paper, end of roll	On
Roll paper and sheet sizes are different	On
Paper set lever in release position	On
Paper is too thick to perform cleaning	On
Paper jam	Blink
Paper cutting error	Blink
Paper not straight	Blink
Paper check error	Blink
Problem with paper output (sheet)	Blink
Fatal error	Blink
Reset, timer IC reset/NVRAM clear	On
Maintenance call	On for 100ms at intervals of 5 seconds

Table 1-24. Pause Indicator

Printer Status	Indicator
Print ready	Off
In SelecType mode	Off
During pause	Off
During ink drying time	Blink
During ink sequence	Blink
Other errors	Off
Fatal error	Blink
Reset, timer IC reset/NVRAM clear	On

Table 1-25. Ink Out Indicators

Printer Status	Indicator
Out of specified ink No cartridge for specified ink Wrong cartridge for specified ink Illegal cartridge for specified ink	On
Ink level low	Blink
Fatal error	Blink
Reset, timer IC reset/NVRAM clear	On

Table 1-26. Paper Source Indicator

Printer Status	Indicator
Selected paper source	On
Fatal error	Blink
Difference with roll paper and sheet	Blink
Reset, timer IC reset/NVRAM clear	On

1.5 Operating Panel Messages

Printer status and error messages appear on the operating Panel display. The table below lists the messages.

Table 1-27. Operating Panel Messages

Display Message	Meaning
SERVICE REQ. nnnnnnnn	Fatal error - see “Service Requests”
TURN PWR OFF AND ON	Turn the printer off and on to reinitialize
RESET	In the process of re-initializing.
TRANSPORT PREP nn%	See “Transportation Mode”
POWER OFF	Preparing to shut down.
COVER OPEN	The cover is open. The carriage stops in place, and the printhead can be damaged if the head remains out of the capped position for a long period of time.
SECURE PAPER LEVER	Paper Set lever is in the released and cannot continue or begin a print, cleaning, or initialization sequence.
NO INK CARTRIDGE	One or more cartridges are not installed
OPTION I/F ERROR	An unsupported Type-B interface card is installed.
INK OUT	• A predetermined amount of ink has been consumed after the cartridge has entered the near-end condition. • A near-end cartridge has been removed and re-installed.
READY *	Can receive and print data.
WAIT *	Resetting Timer IC Clearing NVRAM Performing reset operation Performing ink sequence operation Initializing the printer Initializing the paper
INK CHARGING nnn%	Initial charging of ink - shown in percent completed
INK DRY xx MIN *	Printer waits xx minutes before the next print job to allow enough time for ink to dry on previous print job.

Table 1-27. Operating Panel Messages (continued)

Display Message	Meaning
PRESS PAUSE BUTTON	Waiting for paper initialize start trigger
LOAD xxx PAPER	Wrong paper loaded or wrong paper source selected on operating Panel.
LOAD PAPER	The Paper Set Lever is in the released position (before printing). Pull the Paper Set lever forward to the set position
PAPER JAM	Both front and rear paper sensors detect paper and there is a carriage over-current or out of step error. This is due to: • Paper is jammed inside the printer • Paper is obstructing the carriage path during feeding or cutting operation.
PAPER NOT CUT	Printer did not cut the paper completely, or the cut piece still remains over the paper sensor
PAPER NOT STRAIGHT	Paper skewed more than 3mm between the leading and following edges. Check the printout for skew and make sure no ink was fired onto the platen.
UNABLE TO PRINT	When trying to print a test or adjustment pattern, one of the following occurs: • Paper not loaded • Ink cartridge not loaded • Paper detection error
RELOAD PAPER	• The paper was loaded too far forward and cannot be backward fed to the proper position. • The paper’s horizontal position exceeds the normal printable area when the paper is loaded. • The paper’s horizontal position exceeds the normal cutting area after printing. • The cut sheet is too long and cannot be ejected properly. • Recovery from cutter error.
REMOVE PAPER	Loaded paper is too thick to perform timer cleaning
PAUSE	Pause state.

Table 1-27. Operating Panel Messages (continued)

Display Message	Meaning
INK LOW	When total dots fired = 90%, cartridge enters near-end condition. Remaining ink = A1 at 100% duty
MAINTENANCE REQ. nnnn	Printer requires maintenance - see “Maintenance Request” on page 49
PRINTING *	Processing print data.
PAPER OUT	• No paper loaded • End of roll paper (printer stops feeding) • End of sheet paper (when paper feeds to eject position, put hand under the sheet and press Cut/ Eject to release)

Notes*:Only when PG setting = WIDE, 20th character is "H" on LCD.

1.6 SelecType Settings

☐ Entering SelecType mode

To access the operating Panel settings, press the SelecType button while the printer is not printing. The printer enters the SelecType mode and cannot print.

☐ Using SelecType mode

1. Repeatedly press the SelecType button to view the SelecType menus which appear in the order shown below.

Table 1-28. SelecType Menus

Display Message	For details
PRINTER SETTING MENU	Printer Setting Menu
TEST PRINT MENU	Test Print Menu
PRINTER STATUS MENU	Printer Status Menu
PAPER CONFIG. MENU	Paper Configuration Settings
CUTTER REPLACE MENU	Cutter Replacement Menu
HEAD ALIGNMENT MENU	Head Alignment Menu

2. Press the Item button to select the choice shown in the LCD display.
3. Press the SelecType button to view the options for that Item.
4. Press the “+” button or “-” button to view the available values for an option.
5. Press the Enter button to record the current option or to execute the operation shown in the display.

☐ Exiting SelecType mode

Select one of the following methods to exit SelecType mode:

- Press the Pause button while in SelecType mode; the printer is ready to print.
- Perform the printer initialization.
- Print a status sheet.
- Print a nozzle check pattern.
- Replace the cutter.
- Press the SelecType button several times at the top level of SelecType menus.
- Press the SelecType button one time at the second level of SelecType menus.

1.6.1 Printer Setting Menu

Table 1-29. Printer Setting Menu

Display Message	Options	Notes
PLATEN GAP	Auto, Wide, Narrow	Adjusts the platen gap. (Normally, leave set to Auto.)
PAGE LINE	ON OFF	When Auto Cut Off is selected on the operating Panel, this setting determines whether a line for manual cutting is printed.
INTERFACE	Auto,Parallel,USB,Option1,Option2	Determines which interface the printer checks for data. Auto continuously checks all interfaces and is good for normal use.
PARA. I/F	Compat ECP	Determines the data transfer rate when using this interface.(Normally, leave set to Compatible.)
IEEE1284.4	ON OFF	IEEE1284.4
CODE PAGE	PC437 PC850	Character code setting. (PC437: expanded graphics/PC850: multi-lingual)
ROLL MARG	T/B 15MM 15MM 3MM	Roll sheet margin setting. • Top/Bottom 15mm* top and bottom margins = 15mm left and right margins = 3mm • 15mm: all margins = 15mm • 3mm all margins = 3mm
PAPER SIZE CHK	ON OFF	Determines whether the paper size check is enabled
PAPER ALIGN CHK	ON OFF	Determines whether the paper skew check is enabled
INIT. PANEL	Exec.	Initializes operating Panel setup values to their defaults
AUTO NOZZLE CHK.	PAGE, PASS, OFF (TBD)	Auto nozzle check
AUTO CLEANING	ON, OFF	Auto cleaning

Notes:

* The printed image is the same size whether the margin is 15mm or 3mm. The difference is 12mm of paper clearance is added to the top and bottom edges to make paper feeding more stable and to prevent the paper from rubbing the printheads.

The underlined item equals the default.

- ☐ Platen gap

  You can adjust the platen gap using this option.

- ☐ Roll paper margin

  T/B 15MM = the printed image is the same size whether the margin is 15mm or 3mm. The difference is 12mm of paper clearance is added to the top and bottom edges to make paper feeding more stable and to prevent the paper from rubbing the printheads.

  If the print area is greater than the width of the printable area of the paper, the printer ignores the extra print data on the right side of the paper.

- ☐ Paper size check

  You can disable the paper size check to prevent “RELOAD PAPER” errors which may occur when using very thin paper or paper with low reflective qualities such as tracing paper.

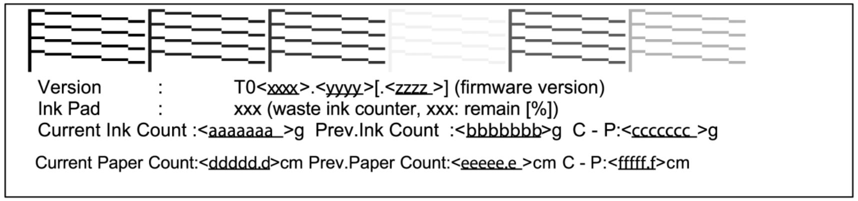
  The print area is determined manually, and the printheads will fire ink onto the platen if the print area is set larger than the actual paper size.

1.6.2 Test Print Menu

Table 1-30. Test Print Menu

Display Message	Item	Notes
NOZZLE CHECK	Print	Check the printout, any missing lines mean the nozzle(s) are clogged.
STATUS SHEET	Print	Prints the current printer settings.

1.6.2.1 Nozzle check



Version : T0<xxxx>.<yyyy>[.<zzzz >] (firmware version)
Ink Pad : xxx (waste ink counter, xxx: remain [%])
Current Ink Count :<aaaaaaa >g Prev.Ink Count :<bbbbbbb>g C - P:<ccccccc >g
Current Paper Count:<ddddd.d>cm Prev.Paper Count:<eeeee.e >cm C - P:<fffff.f>cm

Figure 1-8. Nozzle check pattern

- ☐ Order of colors from left - black, cyan, magenta, yellow, light magenta, light cyan.
- ☐ Each parameter indicates following;

<xxxx>: version of I/F controller (4 letters)

<yyyy>: version of engine controller (4 letters)

<zzzz>: version of ESC/P3 controller (4 letters)

*<zzzz> is blank when ESC/P3 controller is not connected.

<aaaaaaa> : total ink counter just before print the last nozzle check pattern (7 figures)

<bbbbbbb> : total ink counter just before print the nozzle check pattern (7 figures)

<ccccccc> : value of <aaaaaaa>-<bbbbbbb> (7 figures)

<ddddd.d> : total paper counter just before print the last nozzle check pattern (5.1 figures)

<eeeee.e> : total paper counter just before print the nozzle check pattern (5.1 figures)

<fffff.f> : value of <ddddd.d>-<eeeee.e>(5.1 figures)

1.6.2.2 Status sheet

```
XX-XX-XX-XX-XX-XX
XX-XX-XX-XX-XX-XX
Type B1       :Installed
Type B2       :Uninstalled
Photo Accelerator    :Installed
===Current Setting==================================================
Head Gap             :Auto
Border Line          :On
Interface            :Parallel
Parallel I/F         :ECP
IEEE1284.4           :On
Code Page            :PC437
Version              :T0xxxxyyyy[.zzzz]
Margin               :T/B15mm
Paper Size Check     :ON
Paper Align Check    :ON
Parallel I/F         :ECP
IEEE1284.4           :On
Page Count           :123456
Version              :T0xxxx.yyyy[.zzzz]
===Ink Cartridge====================================================
Manufacturer   :EPSON GENUINE INK  EPSON GENUINE INK  EPSON GENUINE I
Ink Type       :Pigment            Pigment       Pigment
Ink Color      :Cyan               Magenta       Yellow
Ink Capacity   :500ml              500ml         500ml
Ink Left       :E*****F            E*****F       E*****F
Production Date:`00/03             `00/03        `00/03
Expire Date    :`01/10             `01/10        `01/10
Ink Life       :06 months          06 months     06 months
Passed         :02 months          02 months     02 months
Printable Sheet:120 pages          120 pages     120 pages
-------------------------------------------------------------------
Manufacturer   :EPSON GENUINE INK  EPSON GENUINE INK  EPSON GENUINE INK
Ink Type       :Pigment            Pigment       Pigment
Ink Colo       :Black              LightCyan     LightMagenta
Ink Capacity   :500ml              500ml         500ml
Ink Left       :E*****F            E*****F       E*****F
Production Date:`00/03             `00/03        `00/03
Expire Date    :`01/10             `01/10        `01/10
Ink Life       :06 months          06 months     06 months
Passed         :02 months          02 months     02 months
Printable Sheet:120 pages          120 pages     120 pages
===Supplies=========================================================
Ink            :xxxxxx.x g
Paper          :xxxxxxx cm
Cutter Life    :E*****F
Ink Pad        :E*****F
CR Motor       :E*****F
PF Motor       :E*****F
Head           :E*****F
Cleaner        :E*****F
```

Figure 1-9. Status sheet

Print status sheet with following specification.

- ☐ Paper Size :A4
- ☐ Font :Built-in font

1.6.3 Printer Status Menu

All consumable items and maintenance parts either run out of their contents or wear out. To determine how much contents (ink) or useful life remains, compare the message and value shown on the operating Panel display to the corresponding value below and the messages in the table below.

E*****	F	100~81% full/life remaining
E****	F	80~61% full/life remaining
E***	F	60~41% full/life remaining
E**	F	40~21% full/life remaining
E*	F	20~1% full/life remaining (generates a warning)
E	F	Less than 1% full/life remaining (generates an error)

Table 1-31. Printer Status Menu

Items	LCD panel display	Values
Firmware version	VERSION	T0xxxx. Yyyy[.zzzz]
Ink used per page	INK USED/PAGE	xx.xg
Printable pages of ink (C)	REMAIN INK C	xxxxxxxPG
Printable pages of ink (M)	REMAIN INK M	xxxxxxxPG
Printable pages of ink (LC)	REMAIN INK LC	xxxxxxxPG
Printable pages of ink (LM)	REMAIN INK LM	xxxxxxxPG
Printable pages of ink (Y)	REMAIN INK Y	xxxxxxxPG
Printable pages of ink (K)	REMAIN INK K	xxxxxxxPG
Total ink counter	INK USED	xxxxxxx.xg
Total paper counter	PAPER USED	xxxxxxx.xcm
Clear total ink counter	INK COUNTER CLR.	EXEC.
Clear total paper counter	PAPER COUNTER CLR.	EXEC.
Ink remaining (K)	INK LEFT-K	0%,nn%,E*F,E****F,E***F,E****F,E*****F
Ink remaining (C)	INK LEFT-C	0%,nn%,E*F,E****F,E***F,E****F,E*****F
Ink remaining (M)	INK LEFT-M	0%,nn%,E*F,E****F,E***F,E****F,E*****F

Table 1-31. Printer Status Menu

Items	LCD panel display	Values
Ink remaining (LC)	INK LEFT-LC	0%,nn%,E*F,E****F,E***F,E****F,E*****F
Ink remaining (LM)	INK LEFT-LM	0%,nn%,E*F,E****F,E***F,E****F,E*****F
Ink remaining (Y)	INK LEFT-Y	0%,nn%,E*F,E****F,E***F,E****F,E*****F
Cutter life monitor	CUTTER LIFE	F E,F *E,F **E,F ***E,F ****E,F*****E
Total number of documents printed	TOTAL PRINTS	nnnnnn
Waste ink count	WASTE INK	F E,F *E,F **E,F ***E,F ****E,F*****E
CR motor life monitor	CR MOTOR	F E,F *E,F **E,F ***E,F ****E,F*****Es
PF motor life monitor	PF MOTOR	F E,F *E,F **E,F ***E,F ****E,F*****E
Head unit life monitor	HEAD UNIT	F E,F *E,F **E,F ***E,F ****E,F*****E
Cleaning unit life monitor	CLEANER	F E,F *E,F **E,F ***E,F ****E,F*****E

1.6.4 User Paper Setup Menu Items

Table 1-32. Paper Setup Menu

Items	LCD panel display	Values
Paper select	PAPER NUMBER	**STD**,1~4 *1
Print paper thickness detection pattern	THICK. PAT.	PRINT *3
Select paper thickness number	PAPER THICK. NO.	1~17 *2
Ink drying time	DRYING TIME	**0 MIN**~30 MIN
Vacuum	SUCTION	**NORM**, LOW

*1 When Standard paper is selected, the items of paper thickness detection pattern print and paper thickness selected number are not displayed. Only when paper 1~4 are selected, they are displayed.

*2 The default display for the paper thickness number is the number used with the paper thickness for which the gap was adjusted.

*3 It displays "PAT. PRINTING" during printing pattern.

1.6.4.1 Detecting Paper Thickness

This option allows the user to detect the thickness of available paper, and register up to four user-defined paper types. Ink drying time can also be registered.

1. Load a sheet of A4 or larger size paper.
2. Press the SelecType button to enter SelecType mode.
3. Select the Paper Config. menu, and press the Item button.
4. Select PAPER NUMBER, one of STD and four types. (If you use EPSON media, select STD.)

5. Press Item and confirm that “THICK. PAT. = Print” appears on the display. Then press Enter to print the paper thickness pattern.

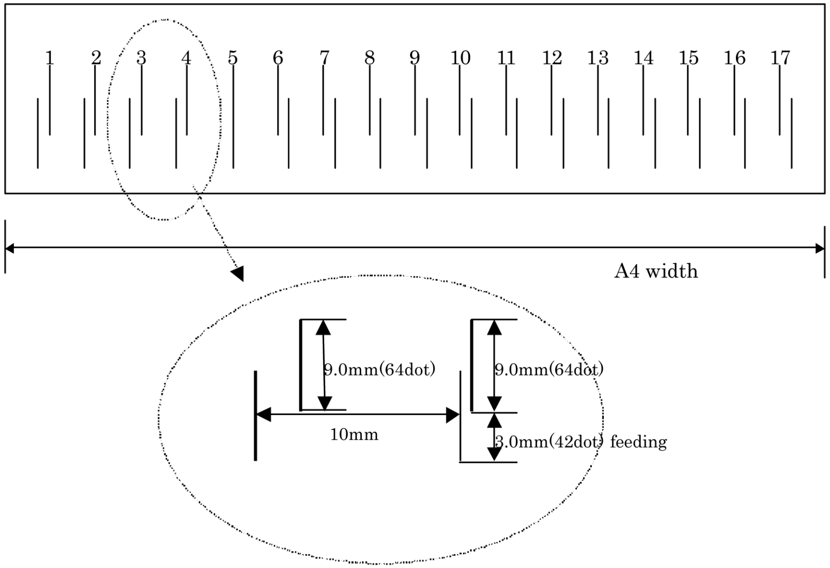


Figure 1-10. Paper Thickness Detection Pattern

6. Select the number of the most vertically aligned pair of lines, and press Enter. (#5 is correct in the example below).

If necessary, select Drying Time from the Paper Config menu to select an automatic period of time that the printer will pause printing to let the previously printed sheet dry. Also, to prevent thin or light paper from getting stuck over the paper suction holes in the Lower Paper Guide, you can select Low (50% power) as the Suction setting.

1.6.5 Cutter Replacement Menu

Print the Status Sheet from the Test Print menu in SelecType mode and see page 45 for information on determining when the cutter needs to be replaced.

The following table includes the steps/messages that must be followed to replace the cutter.

Table 1-33. Cutter Replace Menu

Items	LCD panel display	Values
Replace cutter	CUT. REPLACE	EXEC.
Cover open guide	OPEN LOWER COVER	-
Cutter replacement guide	REPLACE CUTTER	-
Cover close guide	CLOSE LOWER COVER	-

If you need to replace the cutter:

1. Select the cutter replacement menus from the panel.
   *The cutter replacement menu can be selected with pushing SelecType button for 5 sec.
2. Open the cover on the guide.
3. Replace the cutter blade following the guide.
4. Close the cover on the guide.

1.6.6 Gap Adjustment

Selecting this mode allows the user to adjust the following.

Table 1-34.

Items
Paper thickness (in 0.1mm units)
Bi-d adjustment 1 (240cps, VSD1, Small)
Bi-d adjustment 2 (300cps, VSD2, Large)

<Setup>

1. Set the paper in place.
2. Select the gap adjustment menu from the panel.
3. Set to 'STD' when using EPSON paper (0.2mm or 1.2mm thick). For other paper, set thickness in units of 0.1mm.
4. Select the adjustment pattern to be printed (all or individual), and print.
5. Check the printed adjustment patterns and enter the number of the pattern with the least displacement for each adjustment item.
6. Repeat (4)~(5) until adjustment of all items is complete.

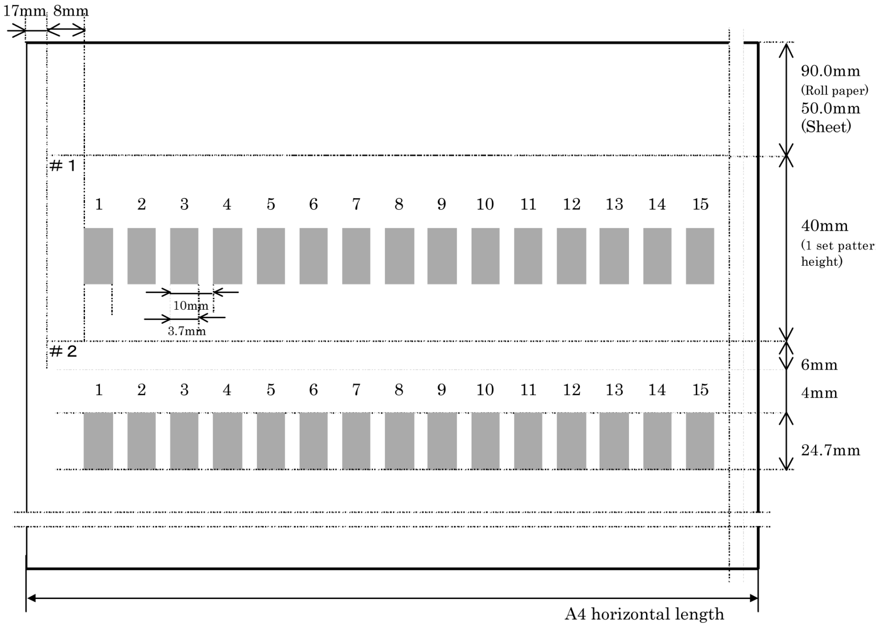

17mm
8mm
90.0mm
(Roll paper)
50.0mm
(Sheet)
# 1
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
40mm
(1 set patter height)
10mm
3.7mm
# 2
6mm
4mm
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
24.7mm
A4 horizontal length

Figure 1-11. Gap Ajustment print pattern

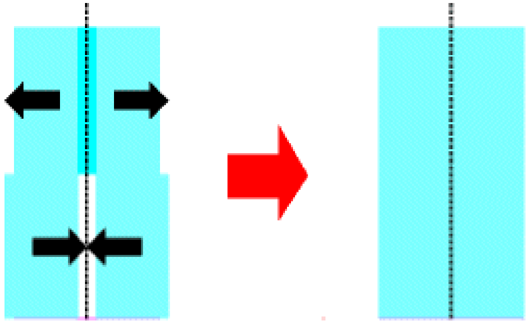


Figure 1-12. Gap Ajustment print pattern

Table 1-35. Gap Ajustment Menu

Display Messages	Item	Notes
PAPER THICK	STD 0.0~1.6mm	Select the thickness, to 0.1mm, of the paper you are using to check the platen gap. Normally, leave set to Standard.
ADJUST. PATT.	All #1~12	Selects which patterns to print. (All patterns or selected patterns only.)
#1	1~8~15	Bi-D adjust 1 (240cps, VSD1, Small)
#2	1~8~15	Bi-D adjust 2 (300cps, VSD2, Large)

*1 When Standard paper is selected the following paper is selected as a result the of detection of paper thickness.
0.2mm if the paper thickness sensor detects thin paper.
1.2mm if the paper thickness sensor detects thick paper.

*2 Paper thickness is inputted at first to print a pattern close to last setting, then it reduce repetition of operation.

*3 It displays "PAT. PRINTING" during printing pattern.

1.7 Maintenance Mode

1.7.1 Outline

CAUTION !

The following explanations regarding operating Panel service functions are for service and support purposes only; do not share this information with the user.

☐ Startup

1. The maintenance mode display is selected by switching power ON while pressing the Pause button.

☐ Operation

1. The Setup items select mode is selected by pressing the Item button once. The first Setup item on the Setup menu is displayed. The display is in the ’[Item]=[current setup value]*’ format. The ’*’ represents the current setup value.
2. The Setup items are displayed in the ’[Item]=[current setup value]*’ format in turn each time the Item button is pressed.
3. With the Setup items displayed, the settable values are displayed in turn in the ’[Item]=[current setup value](*)’ format each time the setup value + button or setup value - button is pressed. The ’*’ is only displayed when the displayed setup value is the current value. The values are displayed in reverse order by pressing the setup value - button. If the setup value + button or setup value - button is pressed for more than the set period of time, the setup values are displayed periodically in forward or reverse order respectively. The cursor moves among column separated by “:“ character (ie:”XX1=<nn>:<mm>”) if the cleaning button is pushed.
4. When the Enter button is pressed, the displayed setup value is entered and recorded as the current setup value, and any associated operations are run. No operation occurs if ’*’ is already displayed.
5. When the Item button is pressed in the Setup item select mode, the system returns to the maintenance mode.

☐ Termination

1. The printer is ready for printing following reset after selecting the panel display language.
2. Switch power OFF > ON.

☐ Maintenance mode setup items : Refer to the following table

Table 1-36. Maintenance Mode Setup Items

Item	Panel display	Setup value
Print hexadecimal dump	HEX DUMP	PRINT *1
Panel display language select	LANGUAGE	**ENGLISH**, FRENCH, ITALIAN, GERMAN, SPANISH, PORTUGUE
Parallel interface mode	PARA. I/F	**ECP**, COMPAT
Set IEEE1284.4	IEEE1284.4	**ON**, OFF
Auto nozzle check	AUTO NOZZLE CHK.	**ON**, OFF
Ink information (K)	K CARTRIDGE INFO	(Ink information menu)
Ink information (C)	C CARTRIDGE INFO	(Ink information menu)
Ink information (M)	M CARTRIDGE INFO	(Ink information menu)
Ink information (Lc)	Lc CARTRIDGE INFO	(Ink information menu)
Ink information (Lm)	Lm CARTRIDGE INFO	(Ink information menu)
Ink information (Y)	Y CARTRIDGE INFO	(Ink information menu)
Gap adjustment menu	HEAD ALIGNMENT MENU	
Paper feed adjustment mode table1 (Pigment, PH=less than 0.1mm)	XX1=<nn>:<mm>	<nn>:00H-C9H <mm>:00H-09H,FFH
Paper feed adjustment mode table2 (Pigment, PH=less than 0.2mm)	XX2=<nn>:<mm>	<nn>:00H-C9H <mm>:00H-09H,FFH
Paper feed adjustment mode table3 (Dye, PH=less than 0.1mm)	XX3=<nn>:<mm>	<nn>:00H-C9H <mm>:00H-09H,FFH
Paper feed adjustment mode table4 (Dye, PH=less than 0.2mm)	XX4=<nn>:<mm>	<nn>:00H-C9H <mm>:00H-09H,FFH
Paper feed adjustment mode table5 (Dye/Pigment, PH=less than 0.5mm)	XX5=<nn>:<mm>	<nn>:00H-C9H <mm>:00H-09H,FFH
Paper feed adjustment offset 1 (Pigment)	XX0=<nn>	<nn>:-32 - 0 - + 32
Paper feed adjustment offset 2 (Dye)	XX0=<nn>	<nn>:-32 - 0 - + 32
System table version	XXS=<mmmmm><n>	<mmmmm>:EG F/W version
User table version	XXU=<nn>	<nn>: 00H - FFH

*1 When hexadecimal dump mode is executed, "HEX MODE" is displayed.

1.7.2 Hexadecimal Dump

The hex dump function allows data sent to the printer to be printed and displayed in hexadecimal format.

One line contains 16 data items in hexadecimal format, with the equivalent characters printed at the right of each line.

If no equipment characters exist (eg control codes) a full stop is printed.

Each 16 data items is printed, and if the last line contains less than 16 data items, this line is printed by pressing the Pause button.

SelecType is not possible in the hex dump mode.

The use of this function allows the user to check that data has been sent correctly from the computer to the printer.

This mode is terminated by switching power OFF.

1.7.3 Panel Display Language Select

Selecting this mode allows the user to select English, French, Italian, German, Spanish, Portuguese for display on the LCD.

1.7.4 Auto nozzle check

Select Auto nozzle check OFF/ON.

The default is ON.

1.7.5 Ink information menu

It display ink information recorded in CSIC.

Table 1-37. Information Recorded in CSIC

Item	Panel display	Setup value
Manufacture logo	MANUFACT.C(-Lm)	“EPSON“
Ink Color	CART.C(-Lm)	CYAN/ MAGENTA?YELLOW/ BLACK/L.CYAN/ L.MAGENTA
Ink type	INK TYPE C (-Lm)	DYE/PIGMENT
Ink capacity	INK CAP. C(-Lm)	500ML/200ML
Ink remaining	INK LEFT C(-Lm)	E F,E* F,E** F,E*** F,E**** F,E*****F
Product date	PROD.DATE C(-Lm)	<YY>/<MM>
Expire date	EXPIRE DATE C（-Lm）	<YY>/<MM>
Ink life	INK LIFE C(-Lm)	<MM>MONTH
Passing time	PASSED C(-Lm)	<MM>MONTH
Printable life	LIFE C(-Lm)	<nnnn>PAGE

Manufacture loro : Manufacture information saved in CSIC of each ink cartridge is displayed.

Ink Color : Ink color information saved in CSIC of each ink cartridge is displayed.

Ink capacity : Ink capacity information saved in CSIC of each ink cartridge is displayed.

Ink remaining : Ink remaining of each ink cartridge is displayed.

Product date : Product date information saved in CSIC of each ink cartridge is displayed with <YY>/<MM> form.

Expire date : Ink expire date information saved in CSIC of each ink cartridge is displayed.

Ink life : Ink life information saved in CSIC of each ink cartridge is displayed.

Passed time : Passed time after opened of each ink cartridge is displayed.

1.8 Maintenance Mode 2

CAUTION !

The following explanations regarding operating Panel service functions are for service and support purposes only; do not share this information with the user.

☐ Startup

1. The maintenance mode 2 display is selected by switching power ON while pressing the Paper source, Cut/Eject, and Paper Feed ↓ buttons.

☐ Operation

1. The Setup items select mode is selected by pressing the Item button once. The first Setup item on the Setup menu is displayed. The display is in the '[Item]=[current setup value]*' format. The '*' represents the current setup value.
2. The Setup items are displayed in the '[Item]=[current setup value]*' format in turn each time the Item button is pressed.
3. With the Setup items displayed, the settable values are displayed in turn in the '[Item]=[current setup value](*)' format each time the setup value + button or setup value - button is pressed. The '*' is only displayed when the displayed setup value is the current value. The values are displayed in reverse order by pressing the setup value - button. If the setup value + button or setup value - button is pressed for more than the set period of time the setup values are displayed periodically in forward or reverse order respectively.
4. When the Item button is pressed, the displayed setup value is entered and recorded as the current setup value, and any associated operations are run. No operation occurs if'*' is already displayed.
5. When the Item button is pressed in the Setup item select mode, the system returns to the maintenance mode 2.

☐ Termination

1. Switch power OFF > ON.

☐ Maintenance mode 2 setup items : Refer to the following table.

Table 1-38. Maintenance Mode 2 Setup Items (Top menu)

Item	Panel display
Counter indication menu	VIEW COUNTERS MENU
Counter initialize menu	CLEAR COUNTERS MENU
Adjustment / setup menu	SERVICE CONFIG MENU
Maintenance information menu	(TBD)

Table 1-39. Maintenance Mode 2 - (NVRAM) counter menu

Item	Panel display	Setup value
Ink remaining (K) counter value	INK K	0~4294967295 (Decimal)
Ink remaining (C) counter value	INK C	0~4294967295 (Decimal)
Ink remaining (M) counter value	INK M	0~4294967295 (Decimal)
Ink remaining (LC) counter value	INK LC	0~4294967295 (Decimal)
Ink remaining (LM) counter value	INK LM	0~4294967295 (Decimal)
Ink remaining (Y) counter value	INK Y	0~4294967295 (Decimal)
Cutter life counter value	CUTTER	0~4294967295 (Decimal)
Cutter life total counter value	CUTTER TOTAL	0~4294967295 (Decimal)
Total prints counter value	TTL PAGES	0~4294967295 (Decimal)
Waste ink counter A value	WAST.INK A	0~4294967295 (Decimal)
Waste ink counter B value	WAST.INK B	0~4294967295 (Decimal)
CR motor life counter value	CR MOTOR	0~4294967295 (Decimal)
CR motor life total counter value	CR TOTAL	0~4294967295 (Decimal)
PF motor life counter value	PF MOTOR	0~4294967295 (Decimal)
Head unit (K) life counter value	HEAD K	0~4294967295 (Decimal)
Head unit (C) life counter value	HEAD C	0~4294967295 (Decimal)
Head unit (M) life counter value	HEAD M	0~4294967295 (Decimal)
Head unit (LC) life counter value	HEAD LC	0~4294967295 (Decimal)
Head unit (LM) life counter value	HEAD LM	0~4294967295 (Decimal)
Head unit (Y) life counter value	HEAD Y	0~4294967295 (Decimal)
Cleaning unit life counter value	CLEANER	0~4294967295 (Decimal)

Table 1-40. Maintenance mode 2 setup items (counter initialize menu)

Item	Panel display	Setup value
Initialize NVRAM, timer, life counter, mechanical counter	INIT. ALL	EXEC.
Initialize NVRAM	INIT. NVRAM	EXEC.
Initialize RTC	RTC INIT	<YY>/<MM>/<DD>/<HH>
Initialize cutter life total	INIT. CUT TOTAL	EXEC.
Initialize CR motor life	INIT. CR MTR	EXEC.
Initialize CR motor life total	INIT. CR TOTAL	EXEC.
Initialize PF motor life	INIT. PF MTR	EXEC.
Initialize head unit	INIT. HEAD	EXEC.
Initialize cleaning unit	INIT. CLEANER	EXEC.
Initialize total printed pages counter	INIT. TTL PR	EXEC.
Initialize ink capacity	INIT. INK	EXEC.
Initialize waste ink capacity	INIT. WA. INK	EXEC.
Clear head error	CLR HEAD ERROR	EXEC.

Table 1-41. Maintenance mode 2 setup items

Item	Panel display	Setup value
Bi-D offset setting #1 (VSD1, 240CPS, Small)	BID OFFSET #1	-4~**0**~+4
Bi-D offset setting #2 (VSD2, 300CPS, Large)	BID OFFSET #2	-4~**0**~+4
CSIC detection level	ED MODE	**ON**, O/N/X
Fatal nozzle limit (Dye)	NZLD	0 ~**2** ~45
Fatal nozzle limit (Pigment)	NZLD	0 ~**2** ~45

Table 1-41. Maintenance mode 2 setup items

Item	Panel display	Setup value
Ink cartridge type	NPD	0,1,2
Selectable M/W (720x720FOL)	MW1 SELECT	**1**, 2, 3, 4, 5, 6, 7
Selectable M/W (1440x720FOL)	MW2 SELECT	**1**, 2
M/W7 balance adjustment	MW7 BALANCE	-30 ~ **0** ~ +30

☐ Initialize NVRAM, timer, life counter, mechanical counter
Selecting this mode allows the user to initialize the NVRAM, timer, life counter, and mechanical counter.

☐ Initialize NVRAM
Selecting this mode allows the user to initialize the NVRAM.

☐ Initialize RTC
Selecting this mode allows the user to set RTC initialized time to NVRAM.
The panel display is following;
RTC INIT = <YY>/<MM>/<DD>/<HH>
*<YY>: year, <MM>: month, <DD>: day, <HH>: hour

The cursor shifts "year ? month? day? hour?" with Cleaning button.
Time is adjusted with Paper feed "+" or "-" button.
RTC initialized time is set to NVRAM with Enter button, and RTC is initialized.
"RTC backup battery end" maintenance call is reset when RTC is initialized.

☐ Initialize CR motor life
Selecting this mode allows the user to initialize the CR motor life counter.

☐ Initialize CR motor life total
Selecting this mode allows the user to initialize the CR motor life total counter.

☐ Initialize PF motor life
Selecting this mode allows the user to initialize the PF motor life counter.

☐ Initialize head unit life
Selecting this mode allows the user to initialize the head unit life counter.

☐ Initialize cleaning unit life
Selecting this mode allows the user to initialize the cleaning unit life counter.

☐ Initialize total prints
Selecting this mode allows the user to initialize the total printed page counter.

☐ Initialize ink capacity
Selecting this mode allows the user to initialize the ink capacity counter.

☐ Initialize waste ink capacity
Selecting this mode allows the user to initialize the waste ink capacity counter.

☐ NVRAM counter value indication
Selecting this mode allows the user to indicate each life counter in decimal.

☐ CSIC detection level
Selecting this mode allows the user to adjust CSIC detection level. Each adjustment value indicates as following;
ED MODE=X : It acquires information from CSIC and informs user of it.
ED MODE=N : It detects Japanese/overseas cartridge and doesn’t inform users of it.
ED MODE=O : It acquires information from CSIC and doesn’t inform user of it at all.

☐ Failed nozzle limit (Dye/Pigment)

In case of nozzle check error with auto nozzle check, nozzle check error dose not occur until it meet following condition permitting optional number of nozzle clogging.

This setting applies to all of nozzle check.

☐ Ink cartridge type

It sets printer model (Dye/Pigment).

■ NPD = 0 : Neutral

■ NPD = 1 : Pigment type

■ NPD = 2 : Dye type

☐ Selectable M/W 1, 2
Set the most suitable value of irregular M/W for each printer, and banding will decrease.
There are 6 types for 720x720dpi FOL and 2 types for 1440x720dpi 4 pass.

☐ MW7 balance
Adjust MW7 feeding in mode B when printing.
MW feeding per pass is defined as following;
N pass --- 1/720inch + d x unit
N+1pass --- 349/720inch -d x unit

☐ Auto cleaning
Select Auto cleaning OFF/ON.
The default is ON.

☐ Maintenance information menu
Read information for printer maintenance.

1.9 Jumper Settings

The factory default settings for jumper and DIP switch on the Main Board (C362MAIN) are as follows.

Jumper Setings

C362DRV
JP1 : OPEN
JP2 : OPEN
JP3 : CLOSE
JP4 : CLOSE
SWD1 : ALL OFF
SWD2 : ON : 2,3,4,6
OFF : 1,5,7,8

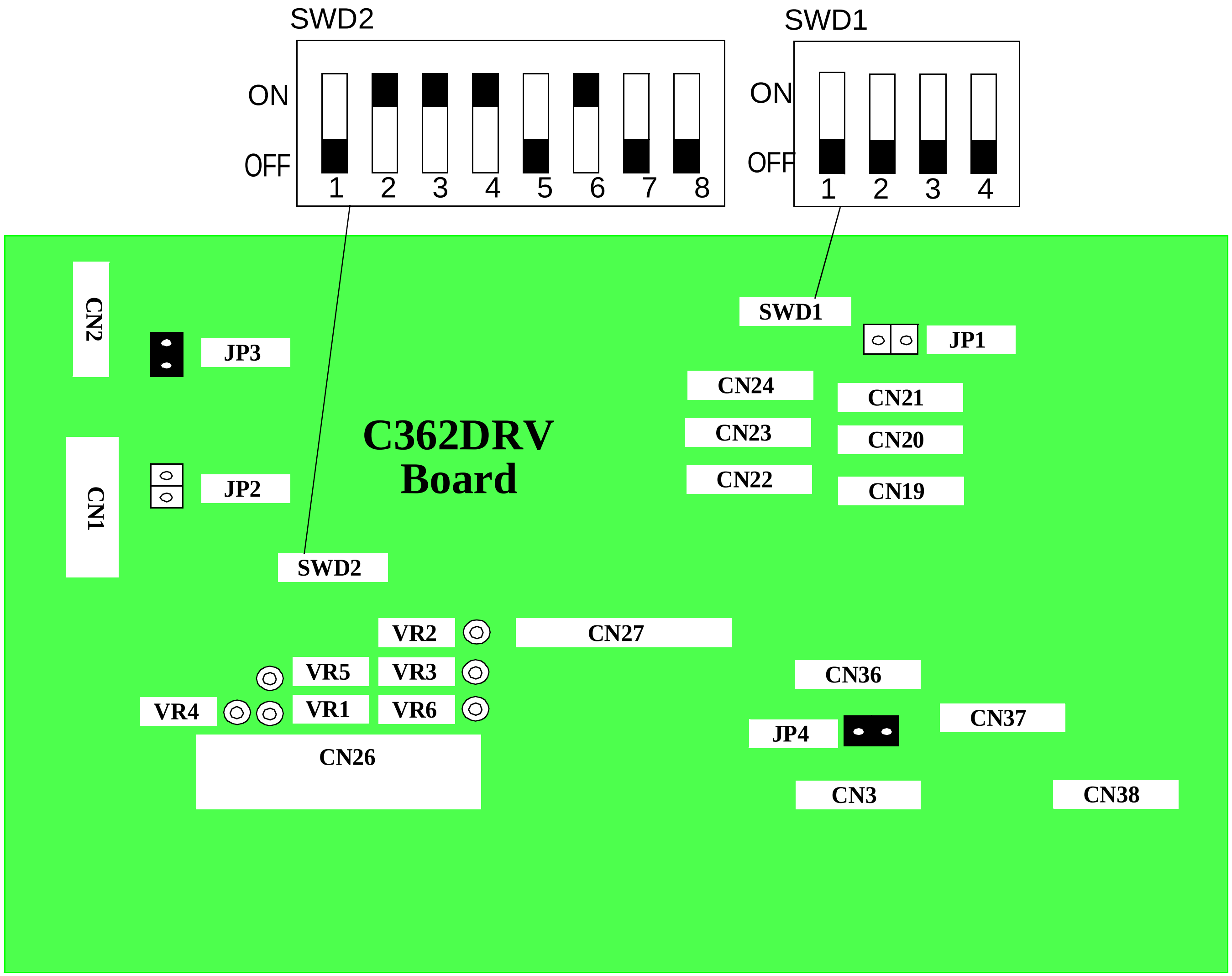

SWD2
ON
OFF
1 2 3 4 5 6 7 8
SWD1
ON
OFF
1 2 3 4
CN2
JP3
CN1
JP2
SWD2
C362DRV Board
SWD1
JP1
CN24
CN21
CN23
CN20
CN22
CN19
VR2
CN27
VR5
VR3
VR4
VR1
VR6
CN26
CN36
CN37
JP4
CN3
CN38

Figure 1-13. Jumper Settings

CHAPTER

2

OPERATING PRINCIPLES

2.1 Description

This section explains the print mechanism and operating principles for the EPSON Stylus Pro 10000/10000CF. The hardware block is shown in Figure 2-1.

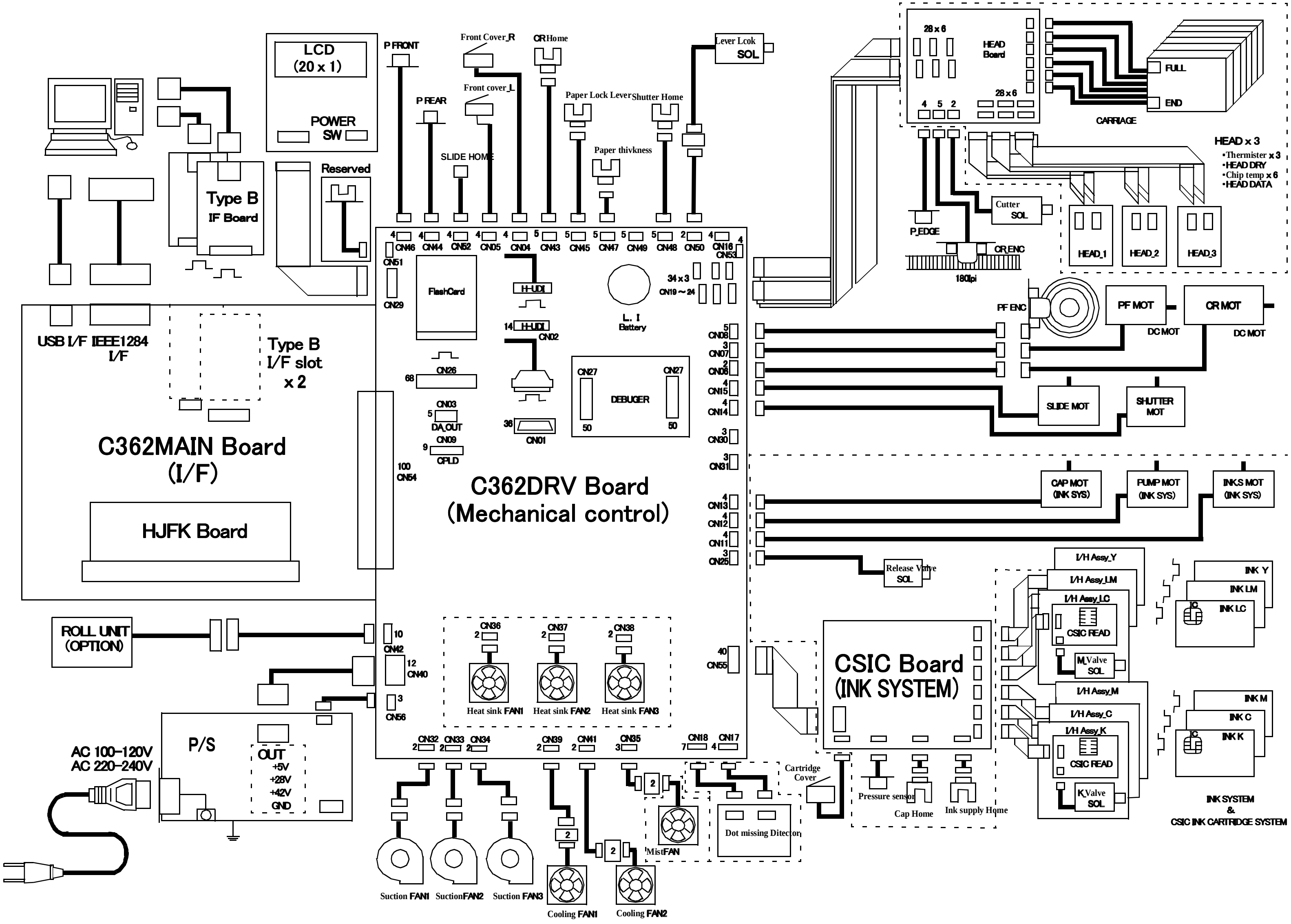

LCD
(20 x 1)
POWER
SW
Reserved
Type B
IF Board
USB I/F
IEEE1284
I/F
Type B
I/F slot
x 2
C362MAIN Board
(I/F)
HJFK Board
ROLL UNIT
(OPTION)
AC 100-120V
AC 220-240V
P/S
OUT
+5V
+28V
+42V
GND
P FRONT
P REAR
Front Cover_R
Front cover_L
SLIDE HOME
CR Home
Paper Lock Lever
Paper thivkness
Shutter Home
Lever Lcok
SOL
CN46
CN44
CN52
CN05
CN04
CN43
CN45
CN47
CN49
CN48
CN50
CN16
CN53
CN51
CN29
FlashCard
H-UDI
14
CN02
L. I
Battery
34 x 3
CN19 ~ 24
68
CN26
CN03
5
DA_OUT
CN09
9
CPLD
36
CN01
CN27
DEBUGER
50
100
CN54
C362DRV Board
(Mechanical control)
CN08
CN07
CN06
CN15
CN14
CN30
CN31
CN13
CN12
CN11
CN25
10
CN42
12
CN40
3
CN56
CN36
CN37
CN38
Heat sink FAN1
Heat sink FAN2
Heat sink FAN3
40
CN55
CN32
CN33
CN34
CN39
CN41
CN35
CN18
CN17
Suction FAN1
Suction FAN2
Suction FAN3
Cooling FAN1
Cooling FAN2
Mist FAN
Dot missing Ditector
Cartridge
Cover
28 x 6
HEAD
Board
4 5 2
CARRIAGE
FULL
END
HEAD x 3
•Thermister x 3
•HEAD DRY
•Chip temp x 6
•HEAD DATA
P_EDGE
Cutter
SOL
CR_ENC
180lpi
HEAD_1
HEAD_2
HEAD_3
PF ENC
PF MOT
CR MOT
DC MOT
SLIDE MOT
SHUTTER
MOT
CAP MOT
(INK SYS)
PUMP MOT
(INK SYS)
INK.S MOT
(INK SYS)
Release Valve
SOL
CSIC Board
(INK SYSTEM)
Pressure sensor
Cap Home
Ink supply Home
I/H Assy_Y
I/H Assy_LM
I/H Assy_LC
CSIC READ
M_Valve
SOL
I/H Assy_M
I/H Assy_C
I/H Assy_K
K_Valve
SOL
INK Y
INK LM
INK LC
INK M
INK C
INK K
IC
INK SYSTEM
&
CSIC INK CARTRIDGE SYSTEM

Figure 2-1. Hardware block

The description of the hardware that showed in Figure 2-1 is shown in Table 2-1.

Table 2-1.

	Name	Function outline,etc.
Circuit system	C362MAIN board	• 32 bit CPU, control program (Firmware inside the FLASH ROM) and memory (DRAM) etc. are being contained. • It has the function that converts the data receive control and receiving data from USB or 8 bit parallel I/F to the printing data. • Even the photograph accelerator module (the HJFK board) and interface card (IEEE1394,100BASE-VTX) installation slot of the option are equipped with it.
	C362DRV board	• It is the board that controls mechanism device department and the motor and sensor and also print head cable etc. are jointed. • 32 bit CPU, Memory,Flash P ROM that are preserving various kinds binding parameters and driver circuit etc. are built in. • Flash Card can be connected to CN26. In the case of servicing, a various machine parameter can be saved.
	Power supply (P/S) unit	• The AC inlet and regulator circuit are built in and generate the basis DC voltage (+5V,+28V,+42V) that required with this machine. • DC voltage is supplied to the C362DRV board via connector cable.
	CSIC	• The cable from 6 ink cartridges, cleaning unit and ink pump Assy are jointed. • There are 6 pieces the EE P ROM and the information (the ink consumption counter etc.) regarding each piece of ink is write into.
	Panel unit	• The LCD for the condition display, LED lamp and switch are being established and be jointed with the C362DRV board and FFC cable.
	HJFK board	• It is the photograph accelerator module. • The thruput of printing improves, by doing JFK processing (the generation of luster data) with this machine. (the effect becomes big at the time of USB or parallel I/F use.)
	Ink cartridge sensor board	• It is incorporated to the ink cartridge holder and do the signal hook up of the ink cartridge/valve solenoid and CSIC board.
	TypeB I/F board	• IEEE1284 or 100BaseT board (the option).
Mechanism system	Print head	• The sub ink tank and the nozzle etc. of 6 color are incorporated.
	Motor	• CR motor, PF motor, SLIDE motor for the head gap adjustment, Shutter motor for the form adsorption power adjustment, Cleaning unit (the cap motor / the pump motor for ink discharge), Ink pump Assy (the pump motor for the compressed air generation)
	Solenoid	• Cutter solenoid, Valve solenoid of ink pump Assy, Ink valve solenoid of I/C holders (6 pieces), Lever locking solenoid that locks the form set lever.
	Encoder	• PF encoder, CR encoder.
	Sensor / Switch	• Form/carriage location detection, each mechanism actuation starting point detection, cover opening detection, etc.,
	Fan	• Form adsorption fan (3 pieces), Cooling fans (Å~2), Ink adsorption fan for dot missing detection.

2.2 Printer Mechanism Components

The printer mechanism of EPSON Stylus Pro 10000/10000CF consists of the following mechanism parts.

Table 2-2. Printer mechanism

Name	Mounting location	Drive voltage	Type	Explanation	Function / control / others	Reference clause
Print head (It is composed of the head board, sub tank, head, FFC cable and ink tube.)	Carriage central	+42V	The piezoelectric device (the head nozzle)	Installation of Three heads of 2 lines of 180 dot nozzles	It drives after it adds the temperature compensation with the thermistor on the C362DRV board and print head.	2.2.1
		+3.3V	Thermistor	Three pieces of head temperature detection		
		+3.3V	The ink level sensor (the Hall IC)	Ink quantity detection inside each sub tank	The overflow, ink full, ink low (the output of 3 condition of the ink end)	2.2.6
Cutter solenoid	Carriage left side	+28V	Linear solenoid	When power is ON, cutter edge is pushed down to the ditch of paper guide L2	Removing the cutter edge with the output signal of the C362DRV board, and form is mutilated with the carriage actuation.	2.2.1
CR encoder	Carriage surface	+5V	Linear encoder	Detection of the band (180dpi) of the T fence	Generating the signal of 720dpi with the C362DRV board it uses it for the detection of the carriage location	2.2.1
CR-HP sensor	CR guide rail right edge	+5V	Photo interrupter	Detection with the sensor on the CR rail of the shutter plate on the carriage	As the home position (the reference point of the printing actuation) of the carriage it uses it	2.2.1
P-Edge sensor	Carriage left side	+5V	Reflection style photo interrupter	Detection of the right edge of the form	Using for the control of the printing starting position	2.2.1
SLIDE home sensor	Right guide frame	+5V	Reflection style photo interrupter	Detection of the location that the gear of the SLID device bites with the protrusion that was established to the carriage	Using for the detection of the location that adjusts the platen gap with the SLIDE motor	2.2.1
CR motor	Right guide frame	+42V	DC motor	Carriage is moved right and left through the steel belt At the time of unactuation, holds it with +5V	Revolution of the motor is controlled (with superheating inhibition) the C362DRV board on the basis of the carriage return encoder signal	2.2.1
SLIDE motor	Right guide frame	+5V	Stepping motor	Gap of the print head is removed to 3 stages (1.4/2.3/2.8mm) through idler gear	Gap between the head and paper are adjusted on the basis of the detection signal of the P-THICK sensor	2.2.1

Name	Mounting location	Drive voltage	Type	Explanation	Function / control / others	Reference clause
PF motor	Left guide frame	+42V +5V	DC motor	PF roller is revolved via the belt slowing-down gear At the time of stopping, holds it with +5V	The revolution of the motor is controlled (with superheating inhibition) the C362DRV board on the basis of the encoder signal.	2.2.2
PF encoder	Left side PF roller bracket	+5V	Linear encoder	The band of the loop scale that was stuck to the slowing-down gear is detected.	Generating the signal of 360LPI with, the C362DRV board the revolution of the motor is controlled.	2.2.2
Form adsorption (Suction) fan (3 pieces)	Main frame central inside	+28V	Blow fan	Inhaling air from the hole of the sub platen the form causes to be stuck. (decided speed revolution)	The inside of the sub platen is divided to 3 pieces corresponding to the fan.	2.2.2
Shutter motor (Suction control motor)	I/S frame	+28V	Stepping motor	It slides paper guide L2 with the cam that was established within paper guide L.	The slide quantity (the adsorption power) is controlled with 20 stages on the basis of the kind and location etc. of the form.	2.2.2
Shutter home sensor	I/S frame	+5V	Reflection style photo interrupter	The home position of the shutter control is detected with the sensor lever of the slide device.	Making the home position the adsorption power 100% the shutter motor actuation quantity is controlled.	2.2.2
P-FRONT sensor	Paper guide L	+5V	Reflection style photo interrupter	The top of the form is detected. (Reading the voltage value with the A/D converter on the C362DRV board.)	Using for the detection of the form registration and form jam at the time of the supplying paper.	2.2.2
P-REAR sensor	Under paper guide U	+5V	Reflection style photo interrupter	The end is detected after the form. (Reading the voltage value with the A/D converter on the C362DRV board.)	Using for the calculation of the presence (the paper end) and biggest printing range of the form.	2.2.2
P-THICK sensor	CR guide rail right side	+5V	Reflection style photo interrupter	The thickness of the form is detected with 2 stages. 0.6 or less mm: thin paper 0.7 or more mm: the cardboard	The slide motor control (the paper gap adjustment)	2.2.2
Paper set lever sensor	Lever bracket	+5V	Reflection style photo interrupter	Condition of the paper set lever sensor (locking/release) is detected	Detecting the paper set lever position.	2.2.2
Lever locking solenoid	Left guide frame	+28V	Linear solenoid	Paper set lever is not able to move from locking condition	Avoiding to operate the lever during printing.	2.2.2
Pump motor	I/S frame	+42V	Stepping motor	It discharges the compressed air to 6 ink cartridges the carriage is locked at the time of motor actuation.	Necessary ink pressure is produced to supply the ink to the sub tank of the printer head.	2.2.5

Name	Mounting location	Drive voltage	Type	Explanation	Function / control / others	Reference clause
Pressure sensor	Ink pump Assy	+5V	Photo interrupter	It detects whether the pressure by the pump motor is in a prescription value.	The C362DRV board makes the pump motor the ON when the pressure becomes below a prescription value.	2.2.5
Carriage locking sensor	Ink pump Assy	+5V	Photo interrupter	The lock lever location of ink pump Assy is detected.	When locks the carriage with the lever during the pump motor detection and the pressure reach the prescription value the locking is canceled.	2.2.5
Air valve solenoid	Ink pump Assy	+28V	Linear solenoid	The pressure that is loading it to 6 ink cartridges is canceled.	At the time of the power supply OFF at the time of and the ink end detection canceling the pressure the ink leakage is inhibited.	2.2.5
Pump valve solenoid	Ink holder	+28V	Linear solenoid	The valve that supplies ink from the sub tanks of 6 ink cartridges to print head.	When the surface of a liquid sensor that is in the sub tank of a printer head becomes below a prescription value opening the valve the ink is delivered.	2.2.5
Cartridge sensor	Ink cartridge	+5V	Board	The type of the presence and color of the ink cartridge are identified.	The wrong installation inhibition of the ink cartridge.	2.2.6
I/C holder cover switch	On the right of I/C frame	+5V	Microswitch	The make and break of I/C holder cover is detected.	halting the ink supply and printing actuation in the time that I/C holder cover is opening.	2.2.6
Ink end sensor	Ink cartridge	+5V	Microswitch	The ink pack configuration (the presence of the ink) inside the ink cartridge is detected.	In the case that this sensor detected, LCD displays "Ink low".	2.2.6
Cap motor	Cleaning unit inside	+42V	Stepping motor	It forces the cap device to the head end and stick (the carriage locks).	It causes to stick the cap to the print head on the basis of the cap sensor, and do the head protection of the head cleaning.	2.2.3
Cap sensor	Cleaning unit	+5V	Photo interrupter	The home position (the sticking location) of the cap device is detected.	The pump motor actuation (ink suction) is enabled with the home position detection.	2.2.3
Pump motor	Cleaning unit	+42V	Stepping motor	Absorbing ink from the print head it discharges it to the waste ink tank.	At the time of the head cleaning actuation and the early period fill of the ink it drives.	2.2.3
Laser luminescence department	Dot missing detector	+10V	Laser diode	Laser optical (5mw) for dot detection is output.	While discharging the ink from the nozzle of the dot head and moving the print head, judge whether dot missing is occurred or not (Laser light the attainment to optical department).	2.2.4
Laser optical department	Dot missing detector	+5V	D/A12 bit converter	The light from the laser diode is detected.		2.2.4

Name	Mounting location	Drive voltage	Type	Explanation	Function / control / others	Reference clause
Mist adsorption fan	Flushing unit	+24V	Brush-less fan	Ink that delivered it with the dot missing detector is absorbed.	It discharges the air from the flushing duct and pull the ink on the side of the flushing unit and discharge it to the waste ink tank.	2.2.4
Front cover detection switch L/R	Left/right guide frame	+28V	Microswitch	Interlocking to the protrusion that is in left and right of the front cover the open and close condition is detected	The secure device that the front cover inhibits the printing actuation and laser output in the condition that opened.	2.2.7
Cooling fan	Main frame back inside	+5V		Cooling the circuit boards.		-

2.2.1 Carriage device section

The unique mechanism is composed on the carriage, to carry out movement/printing to, the printing area (= the carriage migration area) of width with stable/high precision 44 inches the B0 form in this machine.

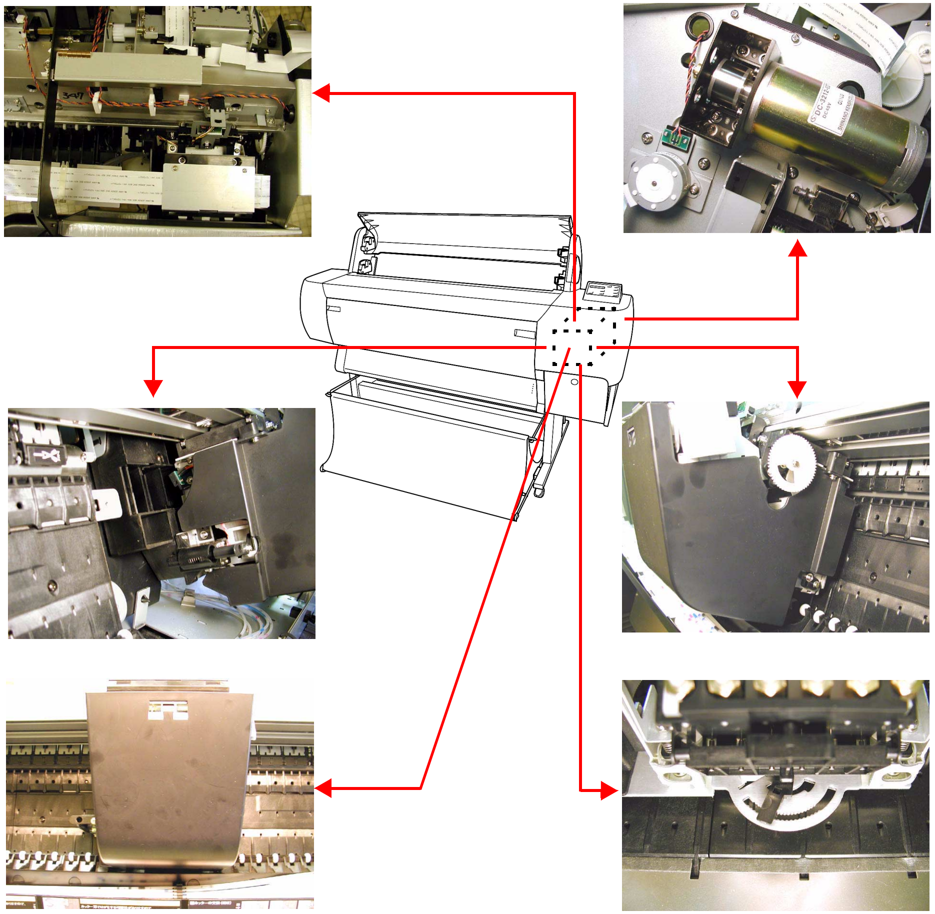


Figure 2-2. Carriage device department

The block diagram of carriage structure is shown below.

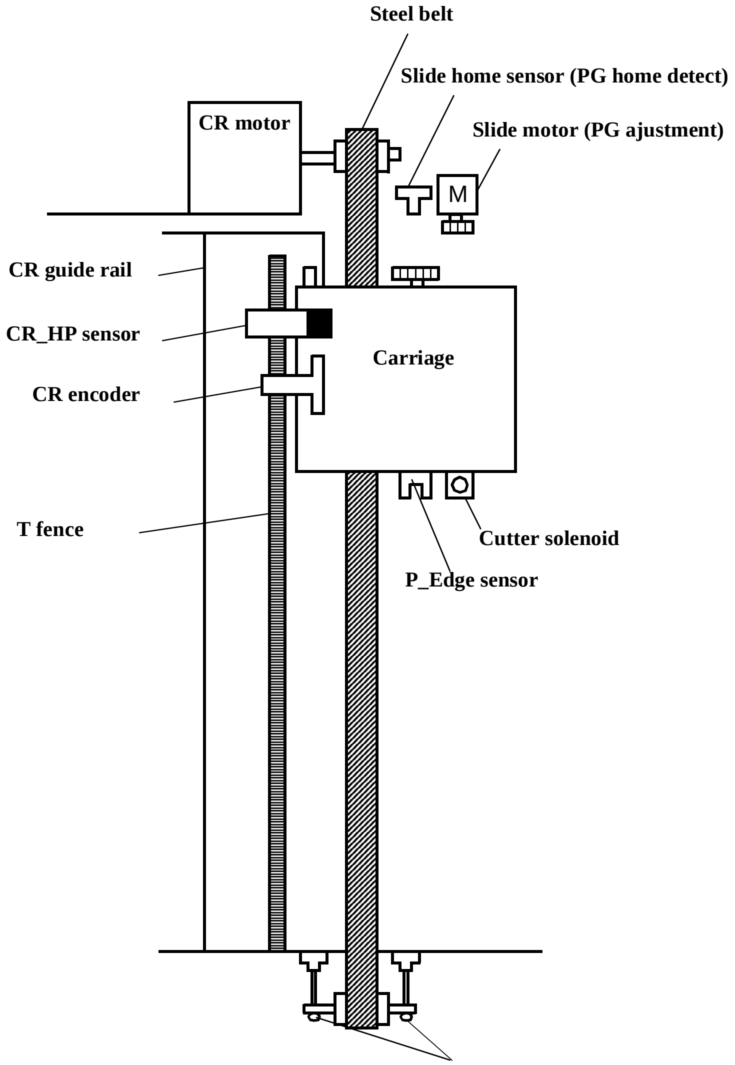

Steel belt
Slide home sensor (PG home detect)
CR motor
Slide motor (PG ajustment)
M
CR guide rail
CR_HP sensor
Carriage
CR encoder
T fence
Cutter solenoid
P_Edge sensor

Figure 2-3. Carriage structure

CARRIAGE MOVEMENT SECTION

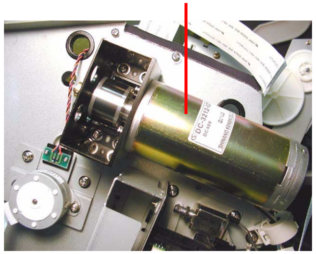
It is the structure that loaded the carriage on the CR guide rail of the aluminum extrusion corner pipe through the four bearings. Because the rail made of the steel is attached to the contact/travelling face of the bearing, the friction and vibration of the movement direction are reduced and durability have improved.

CAUTION

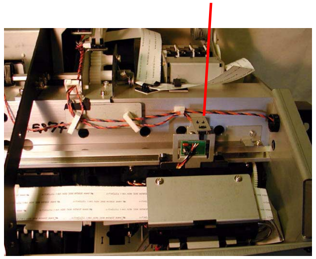
- **Do not remove and also loosen the screws fixing the CR guide rail.**
- **Do not do the removal of the carriage. These are the adjustment/ assembly of the order is carried out 1/100mm in the factory.**

The CR encoder that was attached the slit of the T fence (scale 180a), that is using the direct current motor for the CR motor and was attached to the CR guide rail in parallel to the carriage reads and be doing feedback speed control in comparison with the theory control value on (a linear encoder system), this signal the C362DRV board control circuit. High printing precision is being maintained by this control.

CR motor

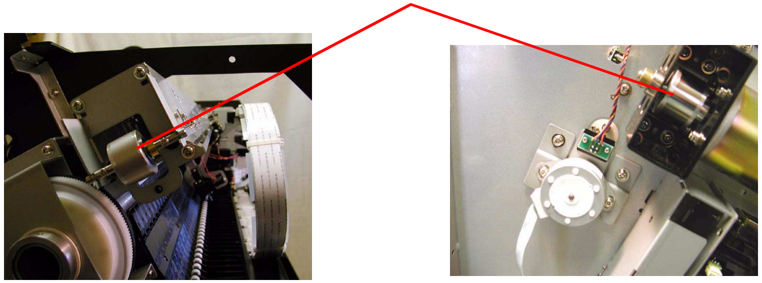


CR encoder



The drive transmission from the CR motor to carriage is using the steel belt that maintenance is easy and have endurance.

Steel belt

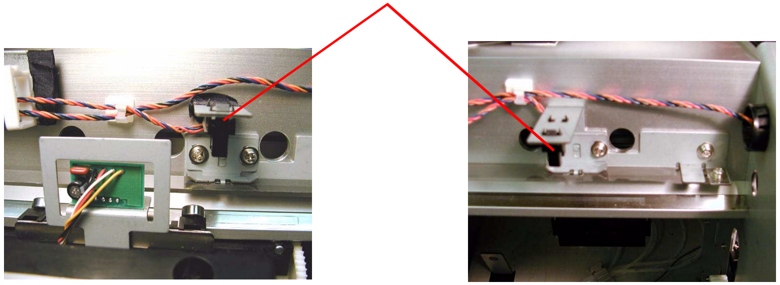


The explanation of the sensor that is used in carriage migration department is as follows.

☐ CR_HP sensor

The photo-interrupter that is being attached in the CR guide rail right edge, The flag (the protrusion) that was mounted to the carriage is detected as the carriage movement home position (HP). The output from this sensor is ’off’ when the carriage is in the HP range,’on’ in the HP range outside .

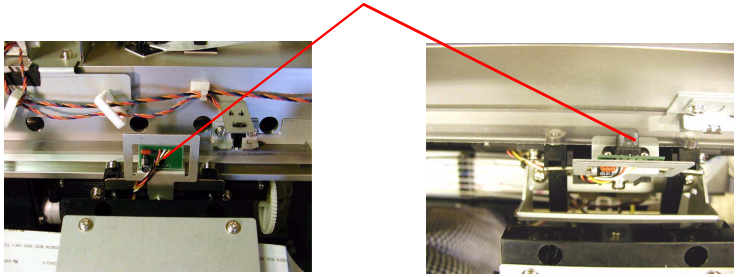
CR_HP sensor



☐ CR encoder

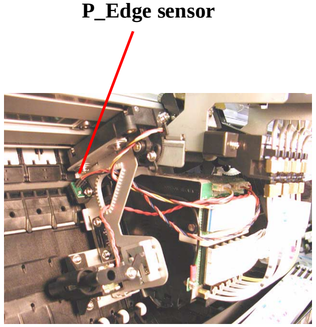
It is attached to the carriage surface, and using the pulse output (2 of channel digital) corresponding to the slit location of the T fence (scale 180a) the top that was incorporated on the CR guide rail to the servo control and also PTS (Print Timing Signal) the generation of the CR motor. Resolution is 1/180” in mechanically (the resolution is 1/720” in software.).

CR encoder



☐ P_Edge sensor

It is being attached on the left side of the carriage and detect the lag (the size of the skew) of the width and the head of the form with reflection style the photo interrupter.



PLATEN GAP ADJUSTMENT SECTION

the carriage (=head) mounting location always needs to keep regular distance to the space for printing precision maintenance.

In this printer, as the gap between the form printing face and also head nozzle face become regular according to paper thickness, the print head nozzle face is variable structure.

The sub carriage that fixed the print head on the carriage that makes the carriage 2 body structure and become a base is being installed. For the sub carriage moves it in vertical direction to the space. The cam is used to this mobile system. From the home location of cam (=PG), for sub carriage to space period changes into linear. When the carriage is in HP location (the right edge) the gear that was attached on the PG motor and sub carriage drives the cam, motor revolution (reverse) and cause the sub carriage positioned to specified gap location.

Doing the paper thickness that is used to 3 stages of the PG small (1.3 mm)/the middle (2.2 mm)/large (2.7 mm) the class division, to keep the distance between the print head nozzle face and form regularly.

Ink viscosity receives the influence to temperature. The thermistor for temperature detection is built to each print head, to control ink protrusion speed/protrusion quantity to same even if temperature changes.

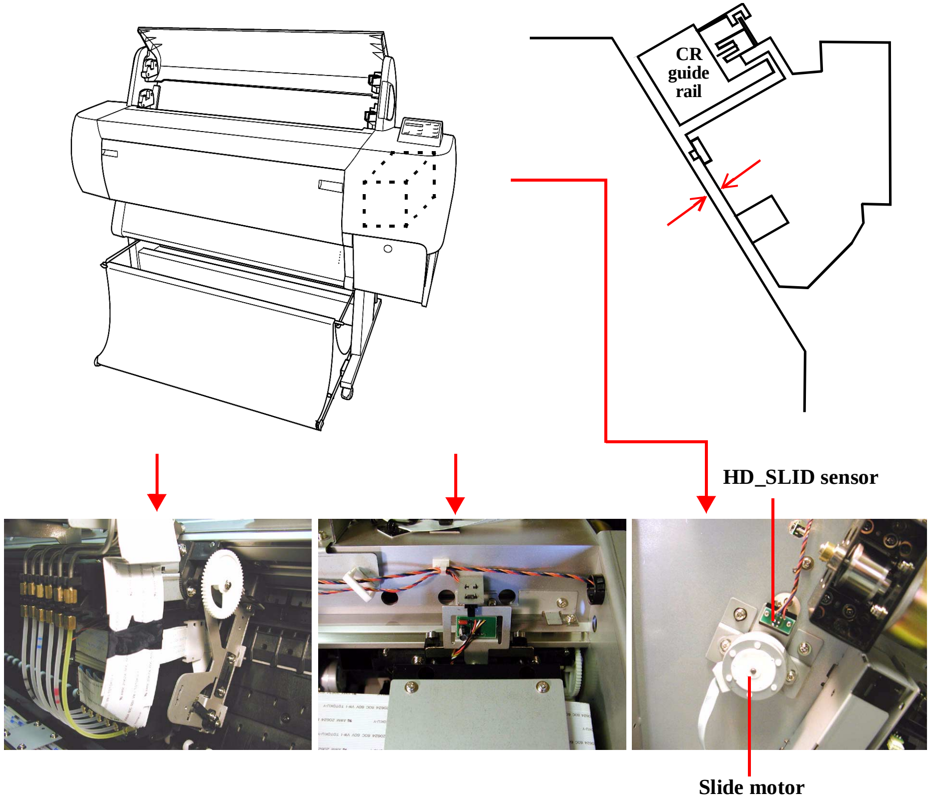


Figure 2-4. Carriage device department-PG adjustment department

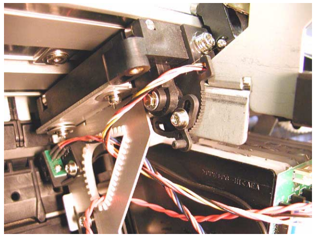
The explanation of the sensor that is used in platen gap adjustment department is as follows.

☐ HD_SLID (head gap starting point detection) sensor

The mechanical origin (the home) the location detection at the time of modification actuation for the sub carriage location (the head height from the space) on the carriage. Being using the reflection style photograph sensor that was attached to I/S frame the hole location of the gear that was attached on the sub carriage is being detected. When sensor output is becoming the constitution that becomes "off" (Less than 2.0V) with the location that the sub carriage dropped most and be actuated detection, sensor output that the head lowers from the location that rose upward makes the point that changed to "on" (Over 3.0V) from "off" the mechanical origin and recognize.

☐ P_EDGE (paper width detection) the sensor

This sensor is installed to the carriage left back. Detecting the top edge location (the degree of the skew) of paper right and left edge location and sense paper width and also skew determination. Being using the reflection style photograph sensor, determining the paper edge (the paper presence) with 8 bit A/D conversion value of sensor output. Determination of the paper presence as follows.



paper exist: A/D value rise (almost 20H over)

paper no: A/D value descent

CAUTION

You can turn off the sensor using “Printer Setting Menu” on page 44 .

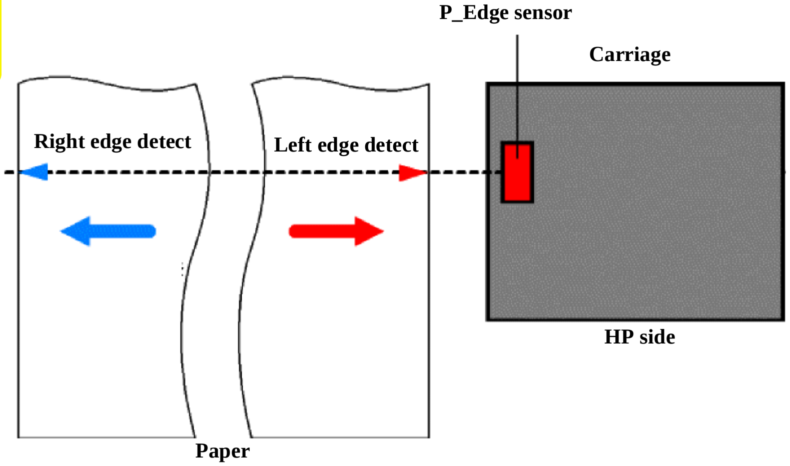


Figure 2-5. Carriage - paper depth detection sensor

☐ Cutter solenoid / cutter

It is being attached to the carriage left side and cut roll paper. The cut paper is carried out, by pushing down the cutter, while accompanying the movement of the carriage.

As for this function on/off binding is possible by panel SW.

Cutter life is about 2000 times and the user interchangeable.

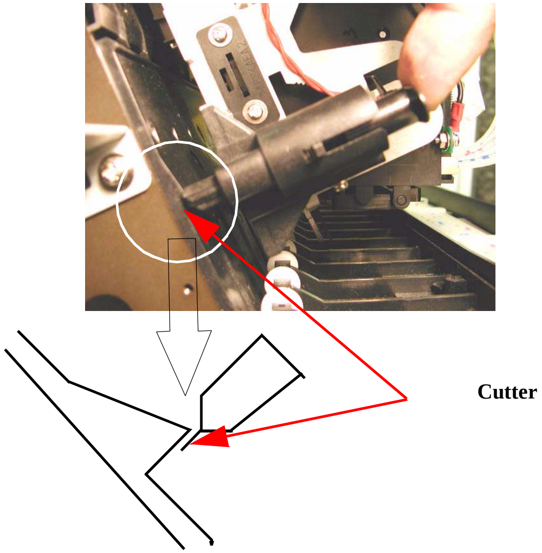


Figure 2-6. Carriage department - cutter solenoid

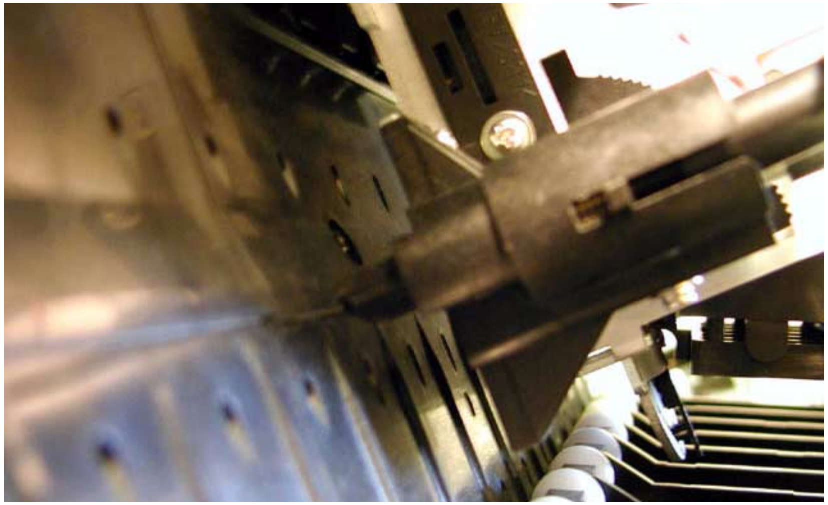


Figure 2-7. Cutter solenoid (on)

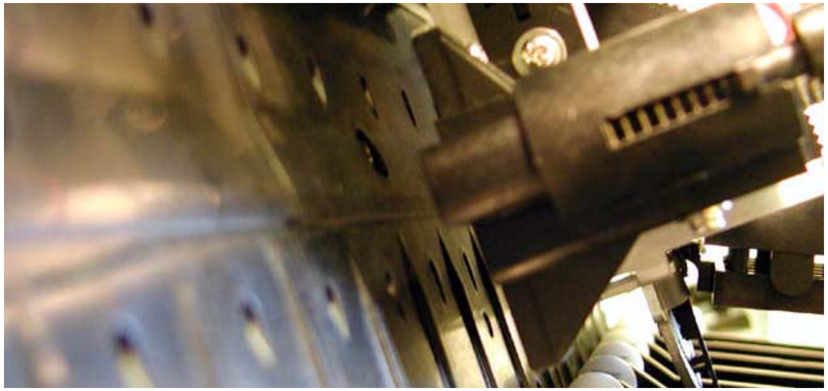


Figure 2-8. Cutter solenoid (off)

2.2.2 Paper feed section

A unique paper feed is being composed, to carry out the high precision paper feed of the roll paper and cut sheet by friction feed in this machine.

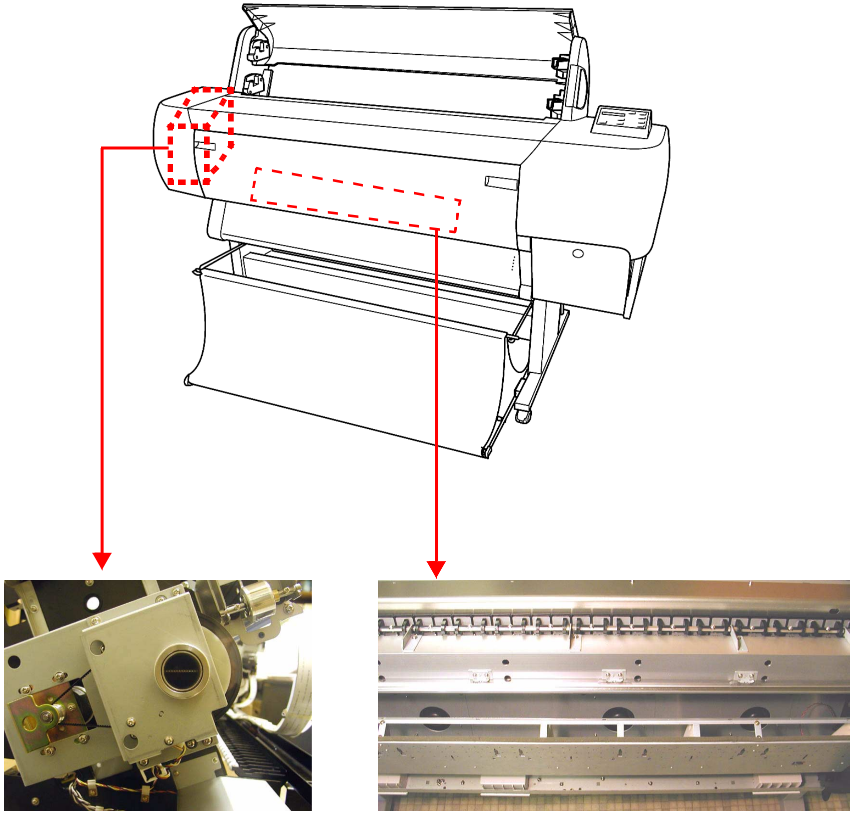


Figure 2-9. Paper feed department 1/2

paper feed department is composed of Pressure/subordinate movement roller assembly that makes the direction to the PF roller (One structure), the traverse plane and was attached to the CR guide rail back.

Using the DC servo-motor for the PF motor to feedback control on the basis of the output pulse of the PF encoder. High printing precision is being maintained by this control.

The drive to the PF roller is notified through the PF timing belt, slowing-down pulley from the PF motor.

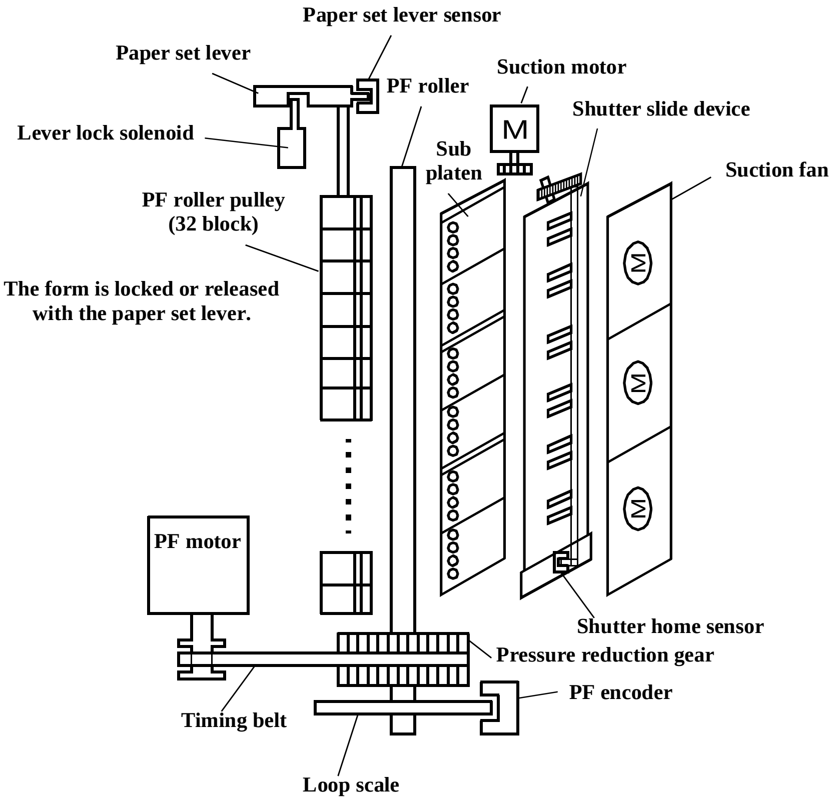

Paper set lever sensor
Paper set lever
Suction motor
PF roller
Shutter slide device
Lever lock solenoid
M
Sub platen
Suction fan
PF roller pulley (32 block)
The form is locked or released with the paper set lever.
M
M
M
PF motor
Shutter home sensor
Pressure reduction gear
PF encoder
Timing belt
Loop scale

Figure 2-10. Paper feed department - PF rail department

The suction fan (x3) is installed in the reverse side of paper guide L2. Delimiting the column direction space of the paper guide L2 reverse side in 3 rooms 1 fan is installed in each room each. By beginning to inhale air in the printer package rear from the plural punch hole on paper guide L2 of the paper path back adsorbing the paper to paper guide L1, L2 face I am intending the stable run (the buoy inhibition) of the paper. The suction fan controls the wind quantity to 3 stages by the firmware control (full open / half open / shut) on the basis of the printer action condition (at the time of the paper setting or the printing etc.) and form kind. Doing the shutter control with the stepping control of the Shutter motor, after the home position (full open) is detected with the shutter home sensor. The suction ability is controlled by shutter and shutter motor duty.

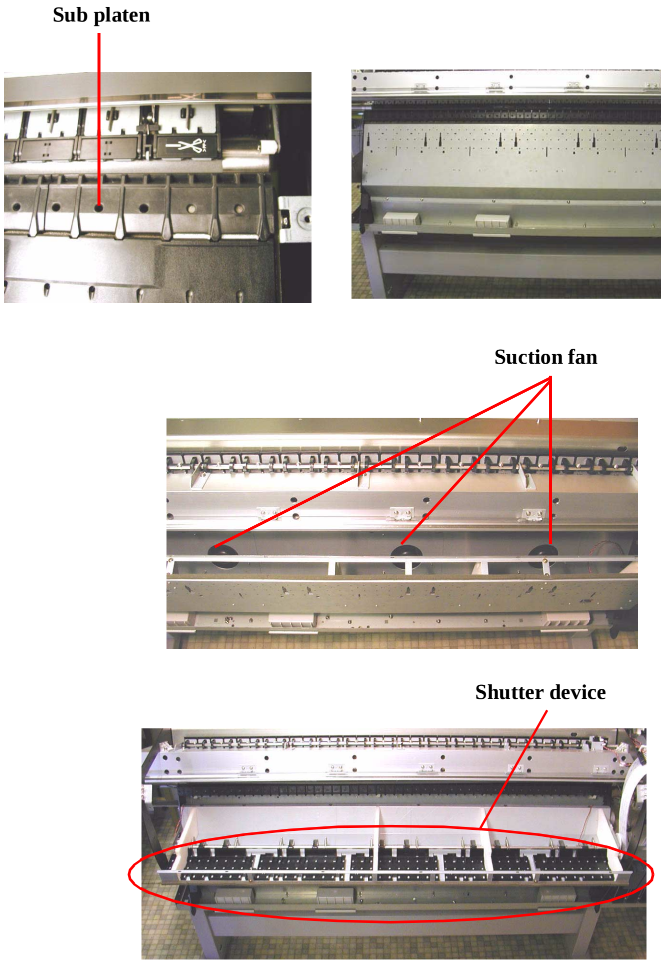


Figure 2-11. Paper feed department 2/2

☐ Shutter position

The shutter position is switched by the paper loading position as following;

Table 2-3. Shutter

Shutter	Paper position
Closed	Start print - 40mm printing from top of form
Half open	40mm - 100mm printing length
Full open	100mm printing from top of form - Paper cutting, Paper initial loading

☐ Shutter motor

The shutter motors are consist of three DC blowers. Their duty are switched by the paper loading position and printing condition as following;

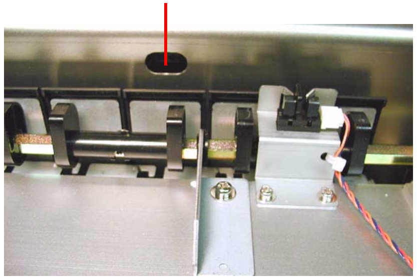
Table 2-4. Shutter motor duty

Shutter motor duty	Condition
0%	Waiting condition without below conditions
50%	P_REAR sensor senses the paper at paper loading by P_FRONT sensor sensing.
80%	P_FRONT sensor senses the paper at paper loading by printing.
100%	Paper initial loading, Printing , Paper cutting

The explanation of the sensor that is used in paper feed department is as follows.

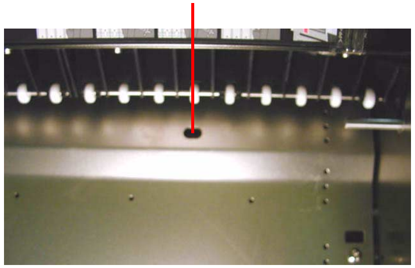
☐ P_FRONT sensor

Using the reflective optical sensor, it is attached to the paper guide L1 back. This sensor detects the top of paper..



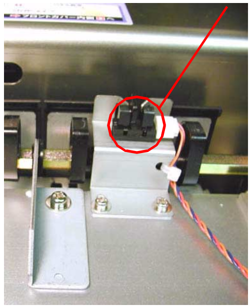
☐ P_REAR sensor

Using the reflective optical sensor, it is attached to the H top cover back. The sensor detects end of paper.



☐ P_THICK sensor

Using the photo-interrupter, it is attached to the H top cover right side. The sensor lever has a pressure/subordinate roller assembly. When paper loading, the lever position is changed according to the paper thickness. Then the sensor detects the paper thickness.



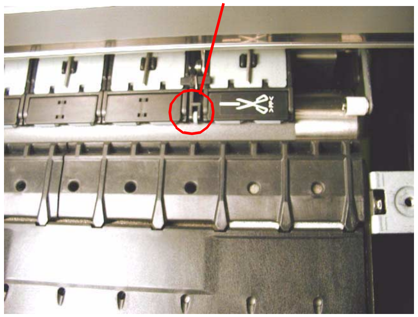


Table 2-5. Paper thick detection

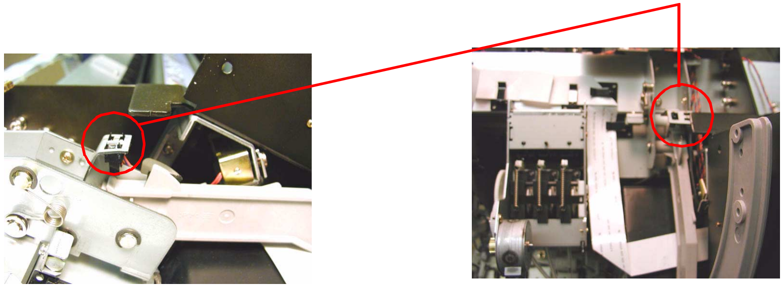
Form kind	Paper thickness	Sensor output	Output voltage
Thin paper	0.6mm or less	ON	0.7V or more
Thick paper	0.7mm or more	OFF	2.4V or more

NOTE: *0.6-0.7mm form thickness uncertain which detection they become.*

- Paper set lever detector

Using the transparency style photograph sensor, it is attached to the lower part of the paper control set lever. The sensor detection lever is to paper control lever actuation the structure that interlocks. When the paper control lever is located in the front it is set condition (“Paper set” position).

Also, the CR motor and PF motor become stop, when the paper set lever sensor is "Release" condition.



2.2.3 Cleaning device section

Cleaning device department is built to a certain cleaning unit on the right the main frame. The waste ink from the cleaning device department is sent to the waste ink tank of the lower right through this three thin tubes and one pipe. (Refer to following figure.)

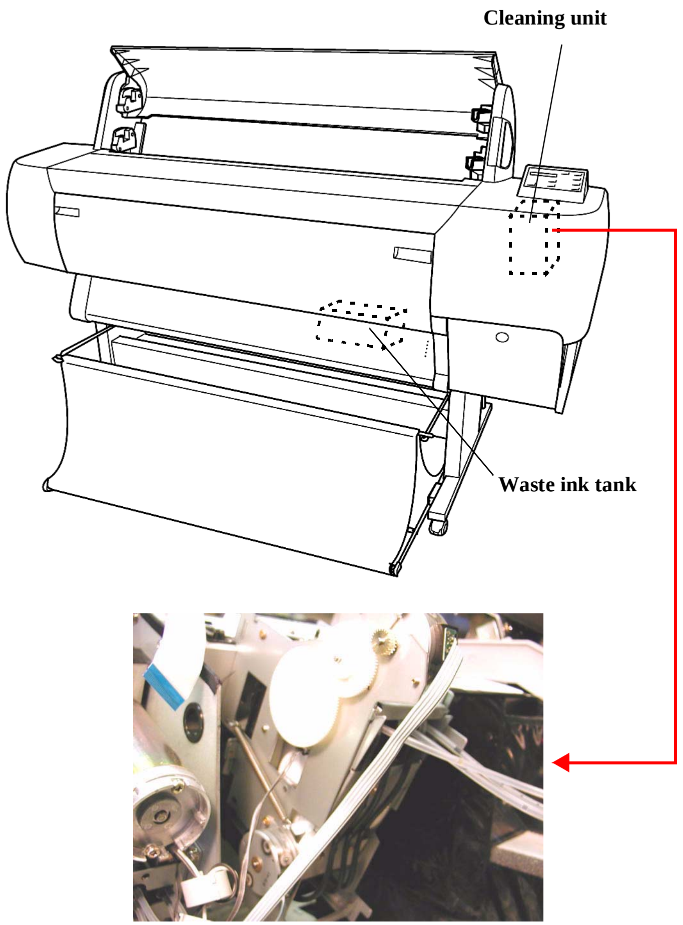

Cleaning unit
Waste ink tank

Figure 2-12. Cleaning device department

The structure of the cleaning unit is shown in the next figure.

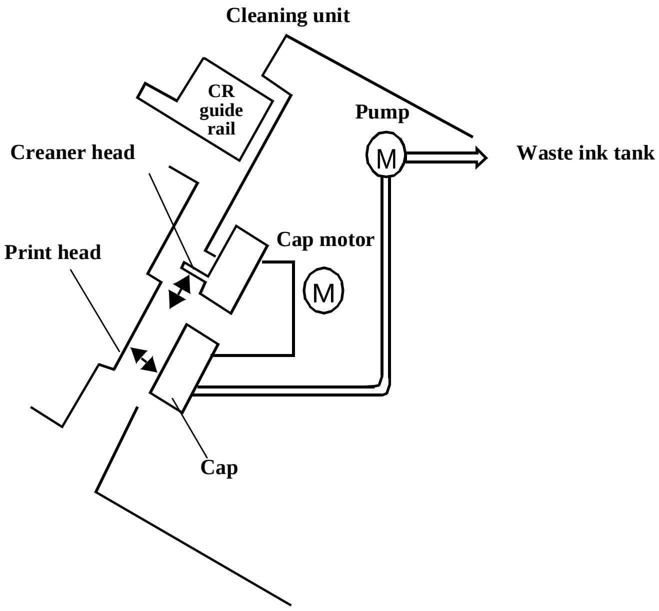

Cleaning unit
CR guide rail
Pump
Waste ink tank
Creaner head
Print head
Cap motor
Cap

Figure 2-13. Cleaning device department expansion

The explanation of the cleaning device department main component is as follows.

☐ Pump assembly

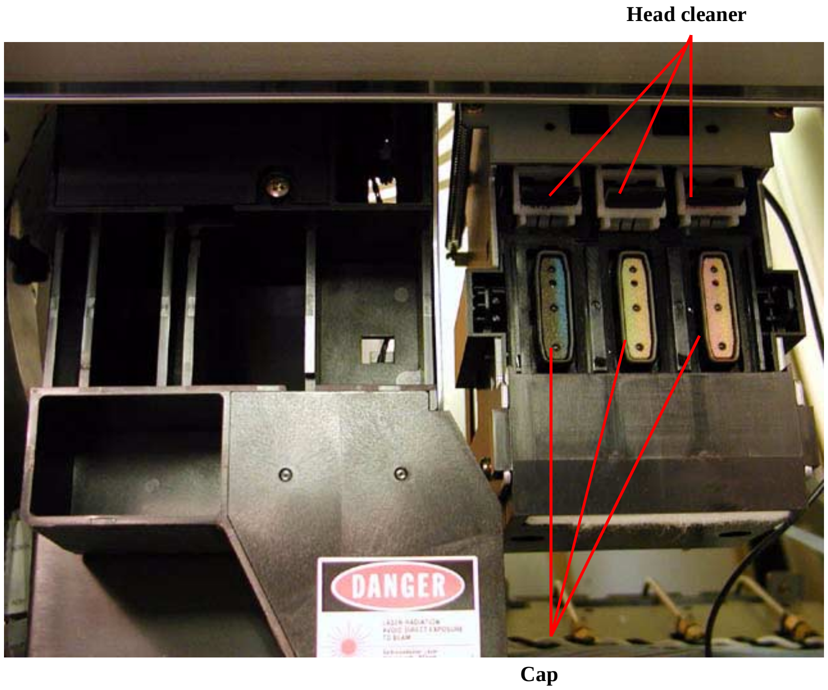
By driving the pump through the cap (close), ink suck from the head nozzle. Usually ink suck, ink early period fill, cleaning etc. are run. The waste ink from the pump is sent to the waste ink tank through three lane pipes.

☐ Head vacuum cleaner

Combining the tension of rubber and felt. Wiping ink and garbage etc. adhered to the head nozzle face it drops it.

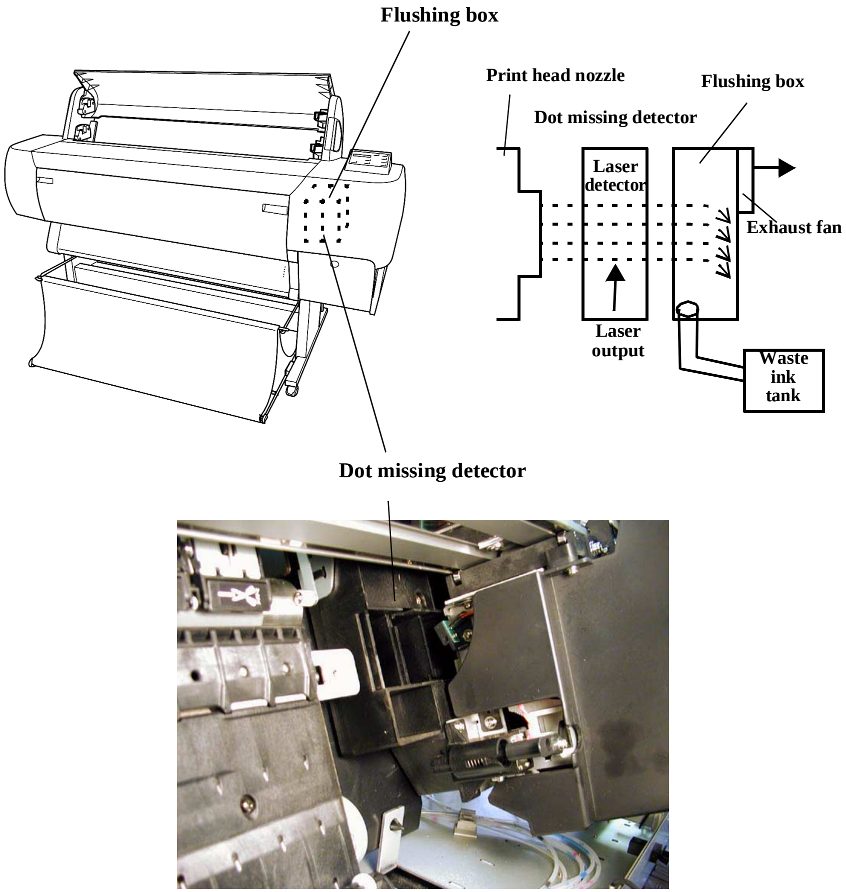
☐ Cap assembly (drive with the cap motor)

Doing print head nozzle capping at the time of unactuation and ink fill/cleaning actuation.



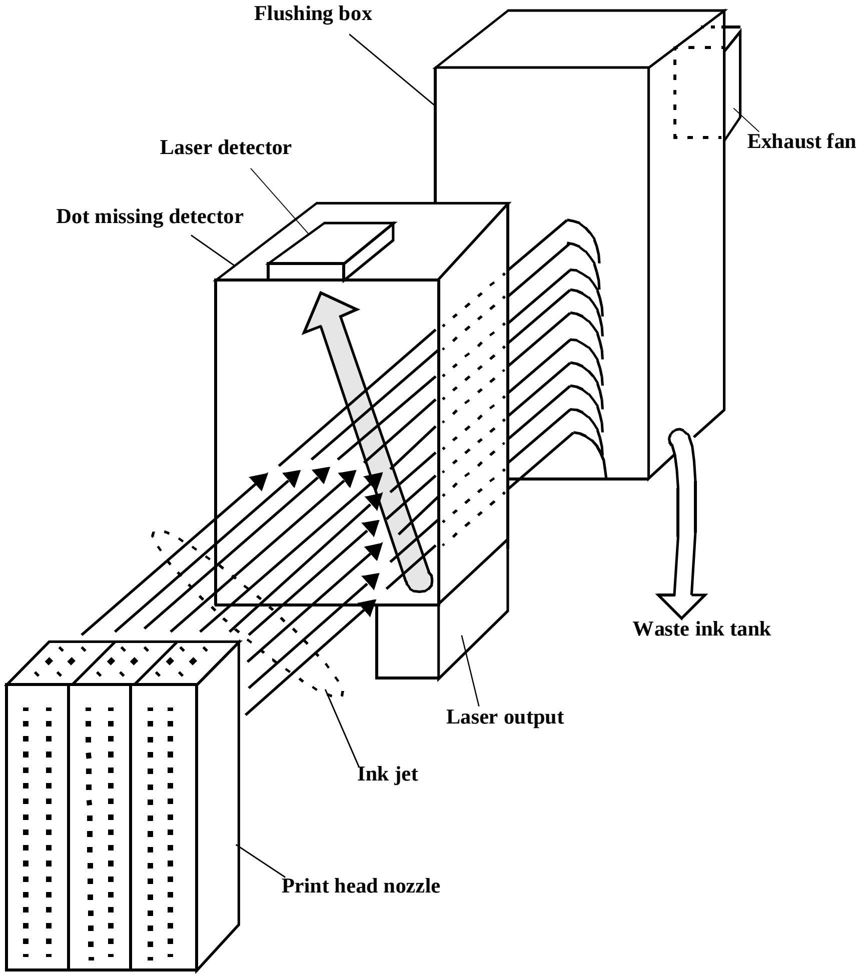
2.2.4 Dot missing detector / Flushing box

Dot missing detector is on the left side of a cleaning unit and detect the abnormality of ink discharge from the print head nozzle (dot lacking etc.) with the laser light. The flushing box is the device that collects the ink that was discharged for dot lacking detection, and absorb ink with the fan. The waste ink is sent to the waste ink tank through 1 pipe.


Flushing box
Print head nozzle
Flushing box
Dot missing detector
Laser detector
Exhaust fan
Laser output
Waste ink tank
Dot missing detector

☐ Dot missing detector

Dot missing detector irradiates the detection device on the diagonal line with the laser light emitting diode and be detecting the ink discharge condition from each nozzle. (It is detecting the presence and timing and also quantity of ink discharge.)

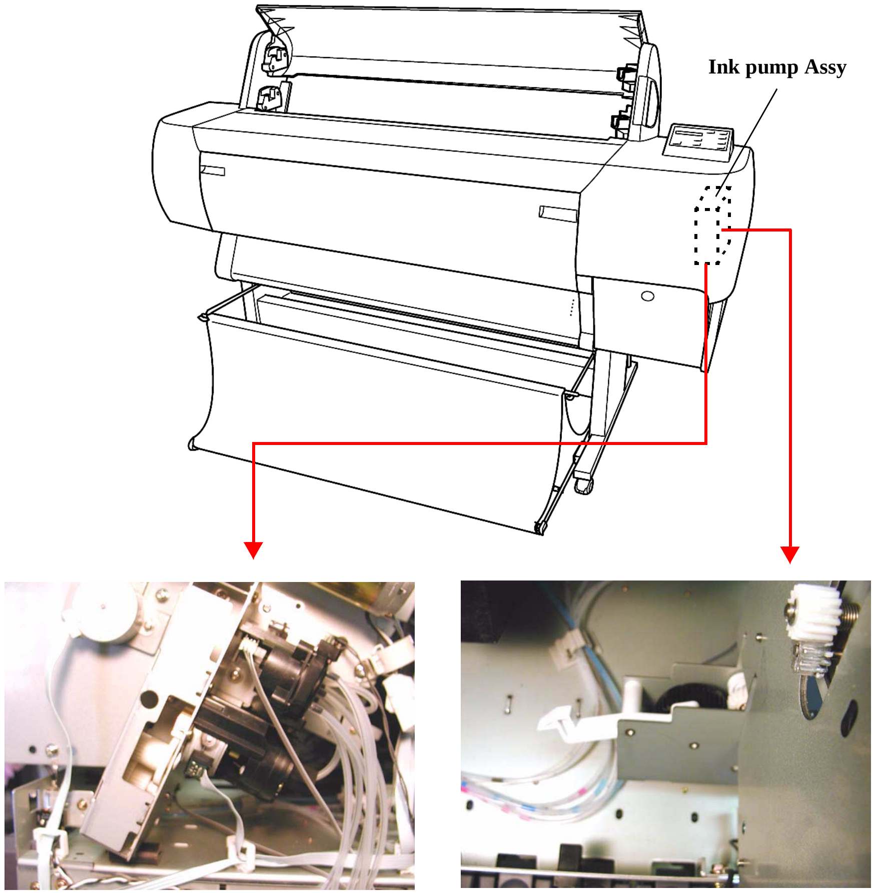

Flushing box
Laser detector
Exhaust fan
Dot missing detector
Waste ink tank
Laser output
Ink jet
Print head nozzle

☐ Flushing box

It is the box that receives the ink that was discharged at the time of the head dummy printing (flushing), and the received ink is discharged to the waste ink absorption material through a large diameter pipe.

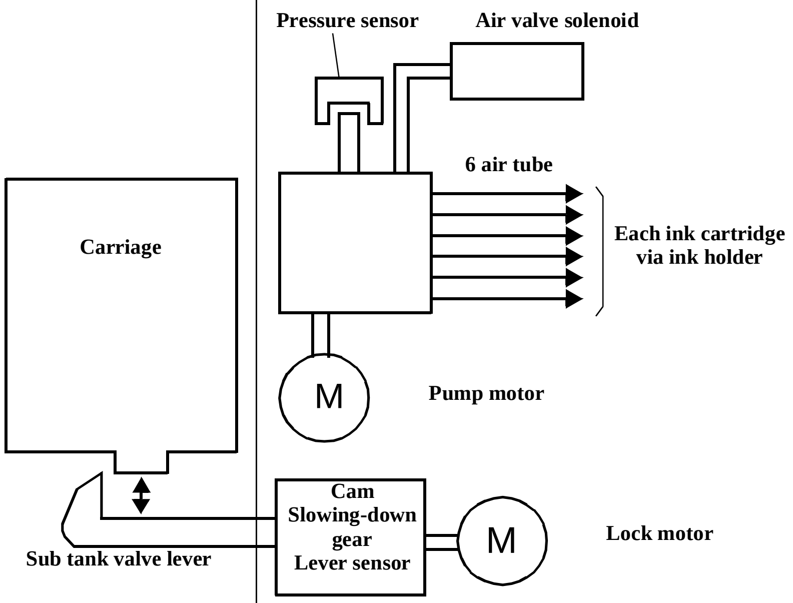
2.2.5 Ink pump Assy

It is in the right edge of a main frame and be attached to I/S frame. There is the device that deliver compressed air to the ink cartridge and locks the carriage.


Ink pump Assy

☐ Compressor device

Specified compressed air is produced with the motor drive and pressure sensor, to facilitate the ink supply from the ink cartridge. The compressed air is jointed to the ink holder through 6 tubes. Also the tube is jointed to the relief valve. When the pressure is over the upper limit. the valve is open by the solenoid, then the pressure is stabilized.


Pressure sensor
Air valve solenoid
6 air tube
Each ink cartridge via ink holder
Carriage
M
Pump motor
Cam
Slowing-down gear
Lever sensor
M
Lock motor
Sub tank valve lever

☐ Sub tank valve lock lever

When the power on sequence or powerful cleaning, the carriage moves to the sub tank valve lever. At this moment, sub tank (on the printhead) valve closed, ink in the sub tank is ejected from the printhead, then the bubble in the tank is ejected to outside compulsory.

2.2.6 Ink supply device section

It is the structure that attaches each ink cartridge of K, C, M, Lc, Lm, Y (from left side) total 6 color to ink holder (I/H) on the right side of the printer in this machine. the protrusion and marking for the wrong insertion prevention are established.

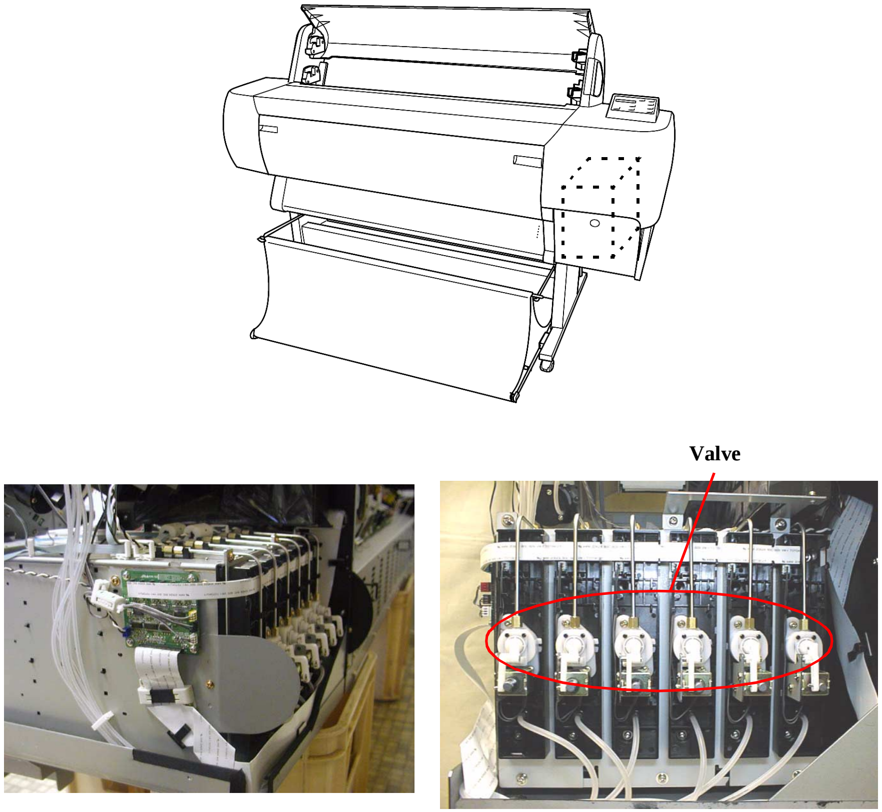
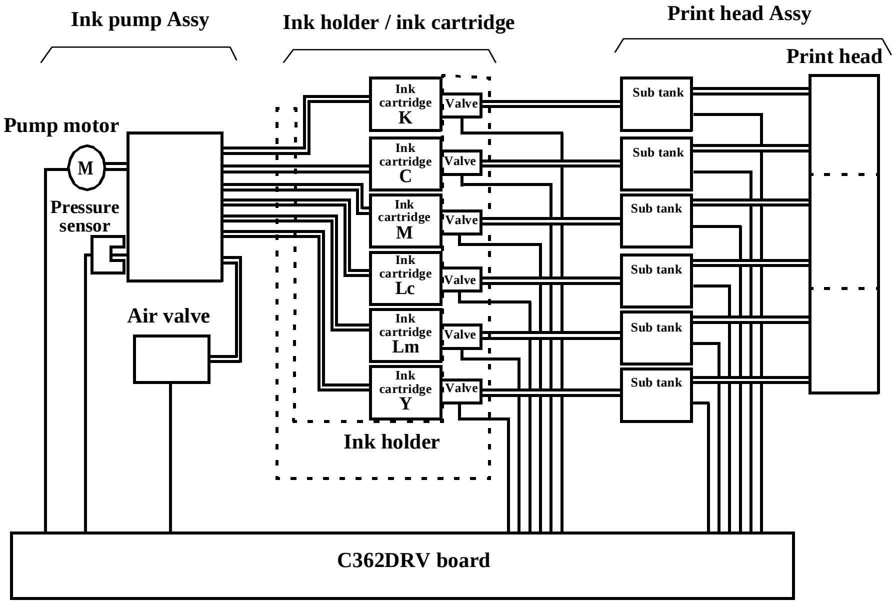


Figure 2-14. Ink supply device department

The flow of the ink is as follows.


Ink pump Assy
Ink holder / ink cartridge
Print head Assy
Print head
Pump motor
M
Pressure sensor
Air valve
Ink cartridge K
Ink cartridge C
Ink cartridge M
Ink cartridge Lc
Ink cartridge Lm
Ink cartridge Y
Valve
Valve
Valve
Valve
Valve
Valve
Ink holder
Sub tank
Sub tank
Sub tank
Sub tank
Sub tank
Sub tank
C362DRV board

Into each color I/H (the ink holder) the following sensor is attached.

☐ Ink cartridge (I/C) the detection sensor

The mounting condition of the ink cartridge is detected by using the microswitch.

- I/C mounting condition (exist): switch closure condition
- I/C unmounting condition (no): switch opening condition

☐ Ink end detection sensor

The ink remainder quantity of each ink cartridge is being detected by using a mechanical switch. the switch does detection with ON/OFF by the detection flag that changes by the ink remainder quantity condition inside the ink pack in the cartridge.

- Ink remainder quantity little (near end): switch opening condition
- Ink remainder quantity exists (usually): switch closure condition

2.2.7 Others

COVER SENSOR

The cover sensor switch is attached in cover open and close department, to detect the open and close condition of the front cover and I/C holder cover where it is attached on the front side of this machine.

This sensor is doing the operation/halt control of the CR motor and PF motor drive circuit through the C362DRV board logic circuit after cover condition detection with the sensor. This control is similar even when the paper hold lever is in cancellation condition.

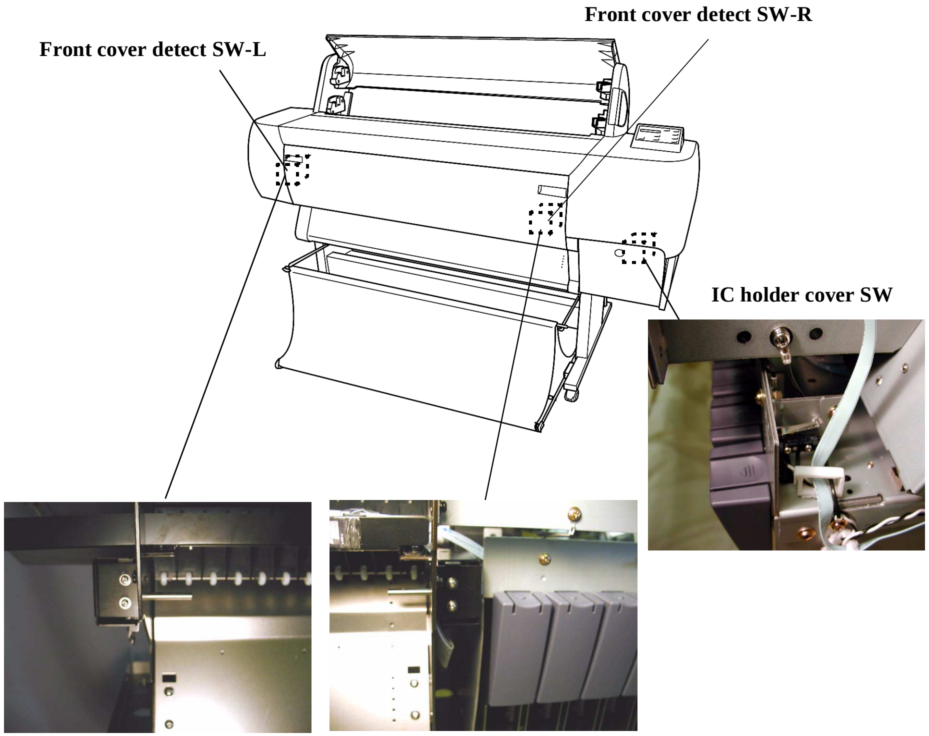

Front cover detect SW-R
Front cover detect SW-L
IC holder cover SW

Figure 2-15. Cover sensor / Panel unit

CIRCUIT BOARD PLACEMENT

There are the panel unit on surface right of this printer, and Power supply circuit board and C362MAIN board, HJFK board, C362DRV board, circuit board in back compartment of this printer.

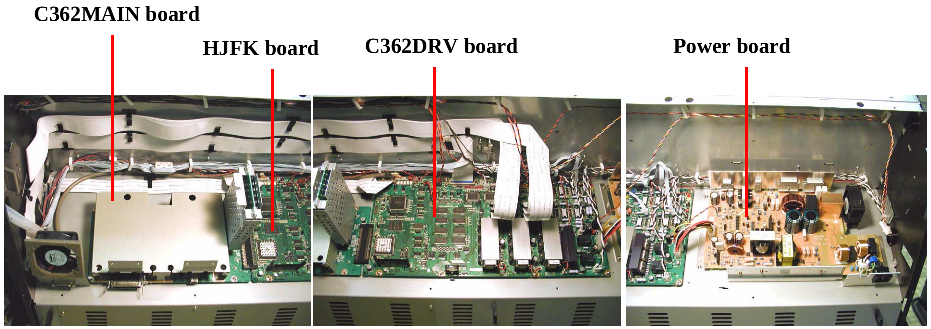

C362MAIN board
HJFK board
C362DRV board
Power board

Figure 2-16. Circuit board placement

2.3 C362MAIN board

The C362 MAIN board does the interface control with the host computer. The HJFK board is installed to connector CN2 standard.

In the case that ESC/P3 unidirectional control code is received data is transferred to the HJFK board. It outputs to connector CN1 (I/F to the C362DRV board) after converts to ESC/P luster data with the HJFK board.

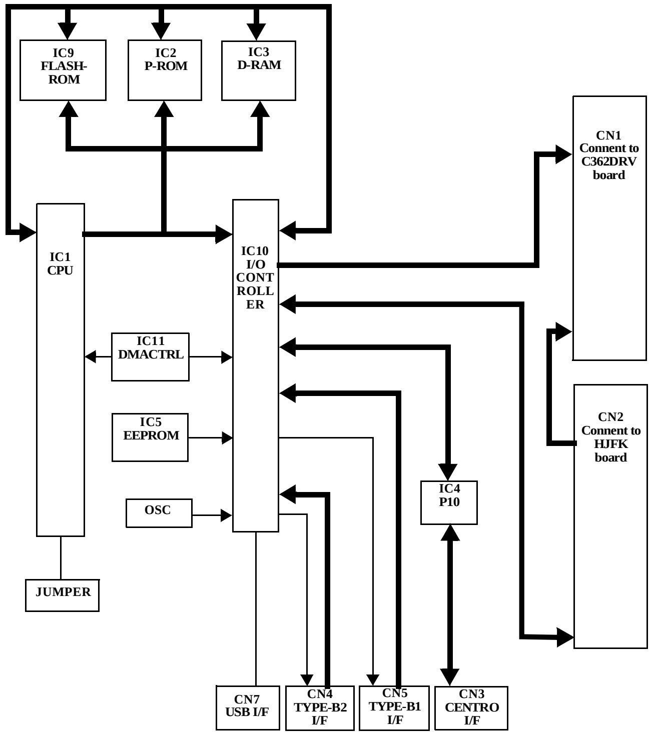
The control code other than ESC/P3 unidirectional houses printing data to D-RAM after be transmitted to the CPU via the input/output controller and analyzed the control code.

After then, printing data is output to the C362DRV board via the input/output controller.

Table 2-6. C362MAIN board main integrated circuit explanation

Name	Location	Function
CPU (H8S/2670) without Self-containing FLASH ROM	IC1	• 32 bit RISC-CPU Clock frequency=24.0MHz
ASIC (E05B83Bx)	IC10	• Printing data processing control The command analysis The raster riser (image data expansion processing) The head drive control (DAC control) The printing timing correction control • The memory control (DRAM/SRAM) • I/F circuit control Parallel I/F (IEEE1284) USB I/F The Type-B control
Flash memory (MBM29LV800TA-70 PF)	IC9	• FLASH ROM and EEP ROM / OTPROM / MASK ROM (8Mbit) Control program housing D/A correction value, user command, factory command preservation
DRAM (81v18165 B)	IC3	• 16M bit DRAM
EEPROM (ATMEL950)	IC5	• Serial EEPROM Head drive D/A factory correction value, USB-ID factory command
EZ1085 CM	IC7	• +3.3V regulator
9AE6CHK (LV61284)	IC4	• Parallel I/F driver
LCX 74,0.08	IC11	• DMA hand shake control
PST592JMT	IC6	• Monitoring 3.3V and reset signal generation
EEPROM	IC2	• System firmware

The block diagram of the C362MAIN board is shown below.


IC9 FLASH-ROM
IC2 P-ROM
IC3 D-RAM
CN1 Connent to C362DRV board
IC1 CPU
IC10 I/O CONTROLLER
IC11 DMACTRL
IC5 EEPROM
OSC
CN2 Connent to HJFK board
IC4 P10
JUMPER
CN7 USB I/F
CN4 TYPE-B2 I/F
CN5 TYPE-B1 I/F
CN3 CENTRO I/F

2.4 C362DRV board description

Explaining about the actuation description of the C362DRV board that does the printer mechanism control/drive of this machine.

The block diagram of this control circuit is shown below.

NOTE: *As for each circuit detail, refer to "the C362DRV board circuit figure" of end of book.*

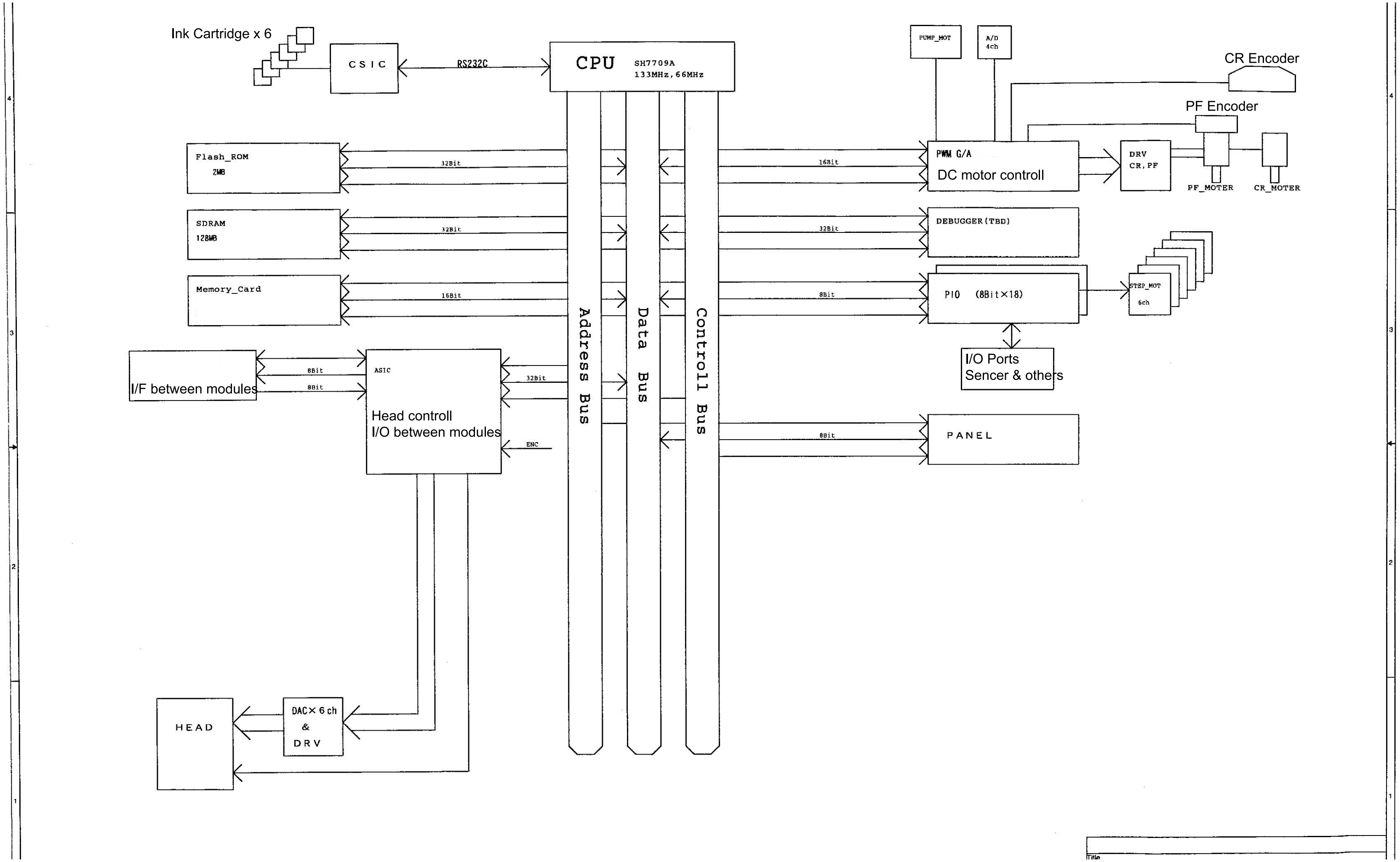

Ink Cartridge x 6
CSIC
RS232C
CPU SH7709A 133MHz, 66MHz
Flash_ROM 2MB
32Bit
SDRAM 128MB
32Bit
Memory_Card
16Bit
I/F between modules
8Bit
8Bit
ASIC
Head controll
I/O between modules
32Bit
ENC
Address Bus
Data Bus
Controll Bus
PUMP_MOT
A/D 4ch
CR Encoder
PF Encoder
PWM G/A
DC motor controll
16Bit
DRV CR, PF
PF_MOTER
CR_MOTER
DEBUGGER (TBD)
32Bit
PIO (8Bit×18)
8Bit
STEP_MOT 6ch
I/O Ports
Sencer & others
PANEL
8Bit
HEAD
DAC× 6 ch & DRV
Title

Figure 2-17. C362DRV board - block diagram

2.5 Power supply circuit board description

100V AC from the plug socket is supplied to the inlet and power supply board of this printer through the power cable of this printer belonging.

The power switch is composing the sub power switch systems. The sub power switch systems, as long as the power cable is jointed, also in the condition where the power switch cut the power supply board is actuated with feeble power.

NOTE: *Do not do the printer operation by on/off of power supply tap SW, because the power supply is the structure that turns off after ink system end sequence, without halting right away, even after this power supply board turned off power supply SW.*

The fuse is attached to the power supply board for overcurrent protection. This fuse rating is shown to the list shown below.

Table 2-7. Fuse rating

Input voltage range	Fuse rating
96 - 264 VAC	125 V AC / 6.3A TBD

There are 3 control signals among the C362MAIN board and power supply board. The details are shown in the following table.

Table 2-8. Action explanation

Signal name	Function	
+28V /+42VREM_ON (MAIN -> power supply)	actuation	It is controlled on/off by the C362MAIN board. • When this terminal is short-circuited drive system power supply 28VDC, 42VDC become active.
	halt	• When this terminal is released (=L),it is done drive system power supply 28VDC, 42VDC become 0VDC. • The 5VDC power supply is not controlled by this terminal.
AC_OFF (MAIN <- power supply)	actuation	Power supply SW turns ON and the power supply board unit starts and each output becomes active. After that the "H" signal is sent to the C362MAIN board.
	halt	Power supply SW turns OFF and when became unactive that each power supply board unit output or the input voltage fell below the rated voltage value the "L" signal is sent to the C362MAIN board.
POWER_SW (Panel / MAIN -> power supply)	actuation	It is jointed to power supply SW of the panel unit. • SW is ON condition and this terminal is short-circuited. the power supply board becomes an operating state.
	halt	• SW is OFF condition and this terminal is released. the power supply unit becomes off, after the operating state is maintained several seconds to several minutes.

CHAPTER

3

TROUBLESHOOTING

3.1 Outline

See this chapter for detailed troubleshooting instructions if the printer is not working properly.

3.1.1 First...

Before starting, confirm or attempt the following:

- I carry out the confirmation of the obstacle contents with the liquid crystal display message and light emitting diode display of operation panel.
- There are no foreign materials inside the printer.
- If the LCD display displays “Ready” when the power is on, print a status sheet. Press the SelecType button twice to access the “Test Print Menu”, press the Item + button until you see “Print Status Sheet”, and then press Enter.
  By checking the Status Sheet you can determine whether the cause of the problem is the printer itself (i.e. a part has been used beyond its useful life) or a user-defined control panel setting.
- The printer is not abnormally dirty. Clean if necessary.
- The printer parts are original or EPSON replacement parts and no part of the printer is deformed or out of shape in any way.
- The connectors are properly fixed with no damage to them or any of the harnesses.
- The cams and gears inside the printer are not worn, not wearing out unevenly, and are connecting properly/turn freely.
- The rubber pads on the rollers are not dirty. Clean if necessary.
- The rubber pads on the rollers are not worn, not wearing out unevenly, and are connecting properly/turn freely.
- If necessary, reset the NVRAM parameters to the factory default parameters. Maintenance Mode 2 > Counter Init. Menu > NVRAM Init.

CHECK POINT

Before beginning disassembly turn the printer off, wait for a few seconds after the LCD panel goes blank, and then remove the power cord from the outlet. Also remove any interface cables.

CAUTION

- **The printer tools mentioned in the following pages have been tested and are proven to preserve the quality of the printer. The use of other, non-standard tools is not supported.**
- **Only use the type of oils and lubricants described in this manual**
- **Always perform adjust procedures as described in this manual**

3.1.2 Trouble-shooting practice

This section describes how to diagnose printer errors. Troubleshooting is divided into the following categories.

☐ Trouble-shooting based on o error display

3.2. Trouble-shooting by error display (the object: the user, service man).

3.3. Service ma n correspondence errors (the object: service man)

☐ Trouble-shooting based on the o printing result

The trouble-shooting based on the 3.4 printing result(the object: service man)

Thereafter, I explain the confirmation point and also confirmation contents on trouble-shooting in terms of the above item

3.2 Troubleshooting Using the Messages

This machine does the self diagnosis on the basis of the detection condition in each sensor and detect abnormal condition with the result and do the display of error condition by the error message and indicator. If you find out any error massage on LCD, please refer to the Panel display (Refer to Table 3-1, “Panel display,” on page 89.) and Indicator display (Refer to Table 3-3, “Indicator Display,” on page 92.), then solve the problem on the printer.

*1: The service engineer correspondence error

> The treatment with the exchange of the confirmation/corresponding part by service engineer shows necessary error producing condition.

Table 3-1. Panel display

LCD message	Status	Type	Reference
PAPER OUT	End of roll	Error	Table 3-9, “Paper End/End of roll,” on page 94
LOAD xxx PAPER	Difference with roll paper and sheet	Error	Table 3-10, “Different paper source is selected on panel,” on page 95
LOAD PAPER	Paper set lever is released	Error	Table 3-12, “Paper set lever is released (During paper set position),” on page 95
PRESS PAUSE BUTTON	Waiting for paper initialize start trigger	-	-
PAPER JAM	Paper jam	Error	Table 3-13, “Paper jam,” on page 95
COVER OPEN	Cover open	Error	Table 3-14, “Cover open,” on page 95
PAPER NOT CUT	Paper cutting error	Error	Table 3-15, “Paper cutting error,” on page 96
PAPER NOT STRAIGHT	Paper not straight (Skew error)	Error	Table 3-16, “Paper not straight,” on page 96
RELOAD PAPER	Paper check error / Paper eject error (sheet)	Error	Table 3-17, “Paper check error / Paper eject error (sheet),” on page 96
RELOAD PAPER	Auto take-up reel failing	Error	Table 3-18, “Auto take-up reel failed,” on page 96
INK COMPART.OPEN	Replacing ink cartridge	Error	Table 3-19, “Replace ink cartridge,” on page 97
INK OUT	Ink end	Error / Warning	Table 3-20, “Ink end,” on page 97 / Table 3-5, “Ink End,” on page 93
NO INK CARTRIDGE	No ink cartridge	Error / Warning	Table 3-21, “No ink cartridge,” on page 97 / Table 3-8, “No Ink Cartridge,” on page 94
OPTION I/F ERROR	Type B interface error	Error	Table 3-22, “Type-B interface error,” on page 97
UNABLE TO PRINT	CAn not test printing	Error	Table 3-23, “Cannot test print,” on page 97

Table 3-1. Panel display

LCD message	Status	Type	Reference
NOZZLE CHECK ERROR	Nozzle check error	Error	Table 3-24, “Nozzle check error,” on page 98
CLOSE INK CART.COVER	Ink cover open	Error/ Warning	Table 3-25, “Ink cover open,” on page 98 / Table 3-6, “Ink Cover Open,” on page 93
WRONG CARTRIDGE	Wrong ink cartridge (Dye / Pigment)	Error	Table 3-26, “Wrong ink cartridge,” on page 98
INVALID CARTRIDGE	Illegal ink cartridge	Error	Table 3-27, “Illegal ink cartridge,” on page 98
COMMAND ERROR	Wrong printer driver	Error	Table 3-28, “Wrong IK designation,” on page 98
INK LOW	Ink low	Warning	Table 3-4, “Ink Low,” on page 93
READY	Ready to print	-	-
NOT READY	Not rady to print	-	
PRINTING	Processing data	-	-
TURN PWR OFF AND ON	Restarting requied	-	-
SERVICE.REQ.nn	Fatal error	Error	Table 3-29, “Fatal Error,” on page 99
WAIT	In ink sequence	-	-
POWER OFF	In power off sequence	-	-
PAUSE	Pause	-	-
MAINTENANCE REQ.nnnn	Maintenance call	Warning	Maintenance call, page 101
RESET	Reset	-	-

*1:The numbers of 4 columns that shows the kind of maintenance demand to,XXXX enter.

*2:Only when the panel display of the PG binding is PG setting = Large, the "h" is displayed to the 20th columns of the liquid crystal devices.

*3:The processing progress status is displayed "%". (=100% the end)

*4:The display priority of case that the error occurred the plural is as it showed it in the Table 3-2, “Printer Condition Display Priority,” on page 90.

Table 3-2. Printer Condition Display Priority

Prioyity	Status
High	Fatal errors / Restarting required
	Paper jam
↑	During power OFF sequence
	Reset, timer IC reset/NVRAM clear
	During power OFF sequence
	During ink cartridge replacement
	Cover open
	Paper set lever is released during operation
	Paper set lever is released

Table 3-2. Printer Condition Display Priority

Prioyity	Status
	Type B interface error
	Ink cover open
	No ink cartridge
	Wrong ink cartridge (dye/pigment)
	Non-genuine cartridge
	Ink end
	Difference in setup for roll paper/sheet
	Command error
	Paper cutting error
	Paper not straight
	Paper check error
	Roll paper end
	Paper output error
	Nozzle check error
	Initializing
	During ink sequence
	Waiting for paper initialization trigger
	During pause
	During paper initialization
	During ink drying
	Ink low / Maintenance required
	Processing data / print ready
Low	Out of paper

Table 3-3. Indicator Display

Indicator	Status	Condition
Operate	Printer power on	On
	Printer processing data, or in power OFF sequence.	Blink
Paper Out	Paper out, end of roll, difference with roll paper and sheet, paper set lever is released, or paper is thick for cleaning	On
	Paper jam error, paper cutting error, paper not straight, paper check error, or problem with paper output (sheet)	Blink
Pause	Pause	On
	Cleaning print head, or ink drying.	Blink
Ink Ou t (Y)	Yellow ink end, or wrong yellow ink	On
	Yellow ink low	Blink
Ink Ou t (LM)	Light magenta ink end, or wrong light magenta ink	On
	Light magenta ink low.	Blink
Ink Ou t (LC)	Light cyan ink end, or wrong light cyan ink	On
	Light cyan ink low.	Blink
Ink Ou t (M)	Magenta ink end, or wrong magenta ink	On
	Magenta ink low	Blink
Ink Ou t (C)	Cyan ink end, or wrong cyan ink	On
	Cyan ink low.	Blink
Ink Ou t (K)	Black ink end, or wrong black ink	On
	Black ink low.	Blink
Roll, Auto cut	Roll, Auto cut is selected.	On
	Difference with roll paper and sheet, roll paper is not set.	Blink
Roll, Cutter off	Roll, Cutter off is selected.	On
	Difference with roll paper and sheet, roll paper is not set.	Blink
Sheet	Sheet is selected	On
	Difference with roll paper and sheet, sheet is not set	Blink

3.2.1 Warnings

Warning messages appear on the LCD display to warn users that a problem may occur. The printer can still print and there is no effect on print quality; however the messages do not go away until the possible problem is taken care of or the printer enters the corresponding error condition. For example, the Waste Ink Pads Near Full message will remain until the pads are replaced and the counter is reset or until the pads become full and the printer enters an error state.

Table 3-4. Ink Low

Item	Description
LCD message	Ink Low
LED indicator status	The LED indicator for the ink cartridge that is low flashes.
Explanation	The printer has received the Near-End signal from one of the ink low sensors. After the LCD displays the Ink Low warning, the printer can print about one A1 sheet at 100% duty. By all means, change the ink cartridge as soon as possible. Once a “low-ink” cartridge has been removed, it will automatically cause an ink-end error if replaced in the printer. Only replace empty or low cartridges with new, full cartridges; otherwise the ink counter cannot perform correctly.
Recovery	Replace the old ink cartridge with a new one.

Table 3-5. Ink End

Item	Description
LCD message	INK OUT
LED indicator status	Corresponded INK OUT LED blinks
Explanation	The printer detects ink end from an ink cartridge. It can print B0 (duty 100%) with sub tank ink cartridge just after this status, however, replace the cartridge with a quite new one as soon as possible.
Recovery	Replace the ink cartridge with new one.

Table 3-6. Ink Cover Open

Item	Description
LCD message	CLOSE INK CART. COVER
LED indicator status	All color ink cartridge LEDs go on.
Explanation	It is occurred when ink cartridge cover is open during printings.
Recovery	Close the ink cartridge cover.

Table 3-7. Maintenance Request

Item	Description
LCD message	"MAINTENANCE REQ. nnnn" "nnnn": Refer to “Maintenance call” on page 101
LED indicator status	Paper Out LED goes on for 100ms at intervals of 5 seconds.
Explanation	The life of the unit which designated by the code "nnnn" is almost run out. It prompts user to call the service person to maintain it.
Recovery	Refer to “Maintenance call” on page 101.

Table 3-8. No Ink Cartridge

Item	Description
LCD message	NO INK CARTRIDGE
LED indicator status	Corresponded ink color LED goes On.
Explanation	It is occurred when the ink cartridge is removed during printing.
Recovery	Set the ink cartridge correctly.

3.2.2 Errors

Error messages appear on the LCD to notify the user that the printer cannot print properly under the current conditions. When an error message appears, printing stops and data transfer from the host PC stops. (The parallel interface signal = /ERROR -> “LOW” and BUSY -> “HIGH” and data cannot be entered.)

Table 3-9. Paper End/End of roll

Item	Description
LCD message	PAPER OUT
LED indicator status	Paper Out LED goes on
Explanation	This error occurs in following cases; • None of paper set. • The printer detects end of roll paper. In this time the paper feed roller holds and keeps the end of roll paper. • The printer prints out a sheet or detects end of sheet. In this time the paper feed roller holds and keeps the end of sheet.
Recovery	• Set new paper. • Remove the paper and set new one. After setting the new paper, the error is cleared. If data remains, the printing job will continue in the new paper.

Table 3-10. Different paper source is selected on panel

Item	Description
LCD message	LOAD xxxx PAPER
LED indicator status	• "PAPER OUT" LED goes on. • The LED blinks corresponding to paper path set with PP command of remote command as following table;
Explanation	Roll paper and cut sheet size settings differ. The PP remote command determines the paper path, and when this setting and the paper setting made via the control panel differ, this (paper mismatch) error occurs.
Recovery	Load the correct paper size, or change the setting in the control panel/driver to match the size of the paper loaded in the printer. When this error clears, printing begins.

Table 3-11. Paper Path Command and LED Indicators

PP Command	Roll Auto Cut	Roll No Cut	Sheet
Roll Paper	Blink	Blink	Off
Cut Sheets	Off	Off	Blink

Table 3-12. Paper set lever is released (During paper set position)

Item	Description
LCD message	LOAD PAPER
LED indicator status	"PAPER OUT" LED goes on.
Explanation	The Paper Set Lever is in the release position during paper set operation.
Recovery	Push down the lever after paper setting, the error clears. Then "PRESS PAUSE BUTTON" will appear and press PAUSE button to start printing.

Table 3-13. Paper jam

Item	Description
LCD message	PAPER JAM
LED indicator status	"PAPER OUT" LED blinks.
Explanation	• Paper jam is detected if the both of rear and front paper sensor detects paper existing. • Over drive current or mis-synchronization of CR motor is detect.
Recovery	After removing the jammed paper, "TURN PWR OFF AND ON" is displayed and then reboot by turning off and on.

Table 3-14. Cover open

Item	Description
LCD message	COVER OPEN
LED indicator status	N/A
Explanation	The front cover is open.When this error is occurs, the carriage movement and ink sequence are held. Therefore it may give damages to printing head if this situation continues very long time.
Recovery	Close the front cover. • If it occurs during printing, it recover to print ready status automaticaly.But, the suspended printing pass is never resumed. Therefore, there may appear a stripe on the print out. • If it occurs during pause status, it recover to pause status automatically.

Table 3-15. Paper cutting error

Item	Description
LCD message	PAPER NOT CUT
LED indicator status	"PAPER OUT" LED blinks.
Explanation	The page was not cut entirely or the page was cut unevenly and part of it still covers the P-FRONT sensor.
Recovery	Open the front cover and remove any cut paper that has not fallen. If necessary, cut the paper above the P-FRONT sensor with scissors. The LCD will display the “Set Paper Correctly” message. Move the Paper Set Lever to the release position and after making sure the leading edge is even, properly reload the paper. If the error is due to a worn cutter blade, replace the blade. Make sure the cutter and cutter solenoid are installed and working properly.

Table 3-16. Paper not straight

Item	Description
LCD message	PAPER NOT STRAIGHT
LED indicator status	"PAPER OUT" LED blinks.
Explanation	Paper skew error occurred. The lateral (horizontal) position of the leading edge and rear edge are off by over 3mm. When this error occurs, there is the possibility that ink has been fired onto the platen; make sure the platen is clean. Also, you may need to reprint your print job if the degree of skew is too much.
Recovery	Set the paper correctly to clear this error. Follow the directions in the user’s guide carefully. If the roll paper is curved or bent near the edge, line up the leading edge on both sides. If reloading the paper correctly does not clear the error, turn the printer off and back on.

Table 3-17. Paper check error / Paper eject error (sheet)

Item	Description
LCD message	RELOAD PAPER
LED indicator status	"PAPER OUT" LED blinks.
Explanation	This error occurs in the following cases. • Paper length is too long to set in the primary position when paper initial loading. • Paper horizontal position exceeds the printable area when paper is set. • Paper horizontal position exceeds the cut area when paper is set. • Sheet length is too long to except or not eject completely. This case is occurred when the panel or command setting is roll paper, but cut sheet use. • After recovery cutter error.
Recovery	• Paper set again. If the top of paper has indentation, trim it. • Remove the paper and set paper again.

Table 3-18. Auto take-up reel failed

Item	Description
LCD message	RELOAD PAPER
LED indicator status	"PAPER OUT" LED blinks.
Explanation	It occur the following case when auto take-up reel is used; The printer prints more than 3m with status that safety device of auto take-up reel is operated, and it turns to a new paper for the first time.
Recovery	1. Release paper set lever. 2. Remove the foreign matter obstructing the sensor of reel. Tighten the paper manually. 3. Set paper set lever.

Table 3-19. Replace ink cartridge

Item	Description
LCD message	INK COMPART. OPEN
LED indicator status	N/A
Explanation	Ink holder is open.
Recovery	Close the holder cover. • If it occurs in "PRINTING" or "READY" status, it return to "READY" status. • If it occurs in "PAUSE" status, it returns to "PAUSE" status.

Table 3-20. Ink end

Item	Description
LCD message	INK OUT
LED indicator status	Corresponded "INK OUT" LED goes on.
Explanation	Ink end error occurs when ink cartridge and sub tank reached ink end level.
Recovery	Set new ink cartridge.

Table 3-21. No ink cartridge

Item	Description
LCD message	NO INK CARTRIDGE
LED indicator status	Corresponded "INK OUT" LED goes on.
Explanation	The ink cartridge is not set completely in the cartridge holder.
Recovery	Set ink cartridge completely.

Table 3-22. Type-B interface error

Item	Description
LCD message	OPTIONAL I/F ERROR
LED indicator status	N/A
Explanation	An unsupported optional interface card is installed but cannot be used.
Recovery	Turn off the printer, remove the unsupported option card, and turn the printer back on. Install a supported option card if necessary.

Table 3-23. Cannot test print

Item	Description
LCD message	Cannot Print
LED indicator status	Same as before this error arose.
Explanation	Cannot perform test print. Due to one or more of the following reasons the printer cannot print a nozzle check pattern, status sheet, PG adjustment pattern, or paper thickness pattern: 1) No paper loaded 2) Ink cartridge missing 3) Paper recognition error This error appears on the LCD panel for about three seconds, and then the display returns to its previous state.
Recovery	Exit SelecType mode and clear the error that appears on the LCD panel. Then return to SelecType mode and print.

Table 3-24. Nozzle check error

Item	Description
LCD message	NOZZLE CHECK ERROR
LED indicator status	N/A
Explanation	The error occurs in the following case; • Auto nozzle check setting is ON in the maintenance mode. • Nozzle clogging is not recovered automatically with auto nozzle check. It takes about 8 minutes for auto nozzle check. The printer keeps it as service request, until next auto nozzle check is executed.
Recovery	There is two way for recovery, Compulsory or head cleaning. ■ **Compulsory recovery** • The printer will be read status with pushing PAUSE button. • It will start printing again if it still have print data in it at that time. ■ **Head cleaning** • The printer starts head cleaning with pushing CLEANING button. • After head cleaning is completed, the printer starts Auto nozzle check again.

Table 3-25. Ink cover open

Item	Description
LCD message	CLOSE INK CART. COVER
LED indicator status	N/A
Explanation	The error occurs the ink cartridge cover is open except printing.
Recovery	Close ink cartridge cover.

Table 3-26. Wrong ink cartridge

Item	Description
LCD message	WRONG CARTRIDGE
LED indicator status	Corresponded color LED goes on.
Explanation	This error occurs when ink type mismatch between ink cartridge and printer.
Recovery	Install the correct ink cartridge in the printer.

Table 3-27. Illegal ink cartridge

Item	Description
LCD message	INVALID CARTRIDGE
LED indicator status	Corresponded color LED goes on.
Explanation	This error occurs when invalid ink cartridge is installed.
Recovery	Install the correct cartridge, and push PAUSE button.

Table 3-28. Wrong IK designation

Item	Description
LCD message	COMMAND ERROR
LED indicator status	All color LEDs blink.
Explanation	This error occurs when ink type (Dye/Pigment) designated with Bi-directional command "IK" is different from ink cartridge which installed printer.
Recovery	Stop the data transmission from the host and reset the panel.

FATAL ERRORS

Fatal error messages appear on the LCD panel to warn users that an unrecoverable error has occurred. However, in some cases the printer may recover if turned off and back on.

Table 3-29. Fatal Error

Item	Description
LCD message	SERVICE REQ. nnnnnnnn
LED indicator status	All LED indicators flash.
Details	A fatal error occurs for one of the following reasons. 1) A problem occurred that the user cannot solve by himself. 2) A maintenance part has exceeded its useful life and if not replaced may cause damage to the printer or printer parts. 3) An illegal function was attempted or illegal command received and the operation is impossible.
Recovery	Turn off the printer and turn it back on. If the error does not recur, continue normal operation. If the same fatal error occurs when you turn the printer back on, see the following table and perform the necessary service.
Type of Fatal error	Refer to the next table.

Table 3-30. Fatal Error Code List

Code	Description	Refer to
00000100	Waste ink pads are full	3.3
00000101	CR motor life (Ink tubes also reached their life)	
00000102	Nozzle check error compulsory continuity	
00000103	RTC backup battery end	
00000104	Auto print head optimization system	
00000105	Head unit life end	
00000106	Cleaning unit life end	

Table 3-30. Fatal Error Code List (continued)

Code	Description	Refer to
00010000	PF motor/ encoder check error	
00010001	PF motor out of step	
00010002	PF motor/overcurrent	
00010003	PF motor/ in position time-out error	
00010004	CR motor/ encoder check error	
00010005	CR motor/out of step	
00010006	CR motor/overcurrent	
00010007	CR motor/ in position time-out error	
00010008	Servo interruption watch dog time out error	
00010009	System interruption watch dog time out error	
0001000A	CR origin sensor mulfanction	
0001000B	PF origin sensor mulfanction	
0001000C	HS origin sensor mulfanction	
0001000D	Cover sensor mulfanction	
0001000E	Cover sensor mulfanction	
0001000F	CR motor over heat (PWM output malfunction)	
00010010	PF motor over heat (PWM output malfunction)	
00010011	Paper jam error	
00010012	Cap origin error	
00010013	Providing system origin error	
00010014	Pressurization error	
00010015	Liquid sensor overflow (K)	
00010016	Liquid sensor overflow(C)	
00010017	Liquid sensor overflow (M)	
00010018	Liquid sensor overflow (LC)	

Table 3-30. Fatal Error Code List (continued)

Code	Description	Refer to
00010019	Liquid sensor overflow (LM)	
0001001A	Liquid sensor overflow (Y)	
0001001B	Head driver (TG) temperature error	
0001001C	FS origin (Suction fan shutter home position) error	“Service engineer require message”
0001001D	CR servo parameter error	
0001001E	PF servo parameter error	
00010020	CSIC card read/write error	
00010021	Starter cartridge error	
00010022	Ink type NVRAM status error	
00010023	RTC operation malfunction	
00010024	Module communication time-out error	
00010025	CSIC EEROR access error	
00010026	RTC access error	
00020000	NVRAM error	
00020001	NVRAM comparison error	
00020002	SDRAM error	
00020003	Flash memory sum error	
00020004	ASIC injustice version error	
00020005	Firmware ASIC mismatching error(Version :A)	
00020006	Firmware ASIC mismatching error(Version :B)	
00020007	Head/ASIC mismatch error	
00020009	Flash memory check sum error	
0002000B	Memory insufficient error	
0002000C	Review error	
00030000 - 00030013	Debug error	
00030015	Ink supply defective (K)	
00030016	Ink supply defective (C)	
00030017	Ink supply defective (M)	
00030018	Ink supply defective (LC)	
00030019	Ink supply defective (LM)	
0003001A	Ink supply defective (Y)	
0003001B	GAP adjustment range error	
0003001C	Timeout in case of no print finishing with ASIC	
D0120013	Module comminication error	
D012001E	Engine side ASIC command transmission over flow	
D012001F	Engine side ASIC command receiption over error	
D0xxxxxx	Program error	
10000E0	CPU address error	
1000100	CPU address error	
10000180	CPU reservation instruction code exception error	
100001A0	CPU Slot unfair command exception error	
100005C0	CPU DMA address error	
10000xxx	CPU illegal trap	
FFFFxxxx	OS kernel detection error	

3.3 Service engineer require message

This section explains the contents and treatment method in terms of the message about the one that the service engineer correspondence is necessary, in maintenance call and fatal error that raised to the preceding.

3.3.1 Maintenance call

MAINTENANCE CALL 0100

☐ Problem
The waste ink pads are almost full, causing a warning error. The printer can continue printing, but this messages overrides status messages such as Ready or Printing.

☐ Solution
Replace the following parts and reset the counters as described below.

- Waste Ink Pads
- Dot missing detector
- Cleaning unit

After the above part are exchanged, "Waste ink Initialization" of maintenance mode 2 is run.

NOTE: *As for the above 3 parts the supply is possible as a regular part kit “Maintenance Kit Stylus Pro 10000/10000CF ".*

MAINTENANCE CALL 0101

☐ Problem
The CR motor reached the 3% remaining to the life.

☐ Solution
Replace the following parts.

- CR motor
- Ink tube

After the above part are exchanged, "CR motor Initialization" of maintenance mode 2 is run.

MAINTENANCE CALL 0102

☐ Problem
There are dot missing on the print head. The next cause is conceivable.

- The defectiveness of the print head.
- Failure of the dot missing detector.
- Offset value adjustment of the dot missing detector defective.

☐ Solution

- Carry out the head nozzle checking in reference to Head nozzle check, page 235. In the case that there are dot missing, the print head exchange.There are not dot missing, refer to Offset Adjustment, page 237 clause and carry out the offset adjustment.
- If this maintenance call occurs again after printhead replacement and Offset adjustment. replace the dot missing sensor and perform the Offset adjustment.

MAINTENANCE CALL 0103

☐ Problem

The lithium battery on the C362DRV board reached the life. (Usually about 8 years the life)

☐ Solution

1. Replace the lithium battery (BAT1).
2. Initialized RTC (Refer to Table 1-40, “Maintenance mode 2 setup items (counter initialize menu),” on page 55)

3.3.2 Fatal error

SERVICE REQ. 00000100:Waste ink tank full

☐ Problem
The waste ink pads are completely full, causing a fatal error. The printer stops printing.

☐ Solution
It is similar as "Maintenance call 0100".

SERVICE REQ. 00000101： CR motor life (Even Ink tube life)

☐ Problem
The carriage drive system reached the life.

☐ Solution

The following confirmation and also part exchange and CR motor initialization

- Whether there is not ink leakage from the ink supply tube and also coupling department, is confirmed.
- It confirms whether there are not dirt and abrasion in the slowing-down gear that was attached to the CR timing belt, PF roller axis.
- The CR timing belt tension confirms whether or not it is normal.
- Exchange the CR motor and ink tube.

After the above part are exchanged, "CR motor Initialization" of maintenance mode 2 is run.

SERVICE REQ. 00000102 : Nozzle check error compulsory continuity

☐ Problem

It is ’00,000,100’ and time in the detailed that displayed it to the LCD panel and be not fatal error.

☐ Solution

Not necessary ("Waste ink Initialization" of maintenance mode 2 is run.)

SERVICE REQ. 00010000: PF ENCODER CHECK ERROR

☐ Problem
PF motor encoder check error
The PF motor makes small revolutions clockwise and counter-clockwise. When it turns, the printer checks the rotary encoder (inside the motor) output signals to make sure the motor is turning at the correct speed/distance. If the encoder sends an incorrect signal, an error occurs.

☐ Solution
Make sure there is nothing blocking the grid rollers. If that does not solve the problem, check the PF motor encoder connection.
If there still is a problem, carry out the tension adjustment or PF motor exchange of the PF timing belt.
If there is not a problem, carry out the following items.

- Confirming whether the dirt and dust are not adhering to the PF loop scale and PF encoder.
- The cable connector joint of the PF encoder and C362DRV board (CN8) are confirmed.
- The PF timing belt tension confirmation/adjustment.

In the case that there is not abnormality with above checking I gradually exchange the next part.

- PF encoder
- PF timing belt
- PF loop scale
- PF encoder extension cable
- C362DRV board

SERVICE REQ. 00010001: PF MOTOR OUT OF STEP

☐ Problem
PF motor out of step - the length of the PF motor internal encoder’s pulse is too long or too short compared to the regular pulse.

☐ Solution
Make sure there is nothing blocking the grid rollers. If that does not solve the problem, check the PF motor encoder connection. If there still is a problem, try the following.

- PF timing belt exchange
- PF motor exchange
- PF motor extension cable exchange
- C362DRV board exchange.

SERVICE REQ. 00010002: PF MOTOR OVER CURRENT

☐ Problem
PF motor overcurrent - Feedback from the PF motor (IC35) driver’s 10-pin output (sensor signal) indicates that the PF motor’s current is irregular.

☐ Solution

- The coil resistance value (6.7Ω) the measurement of the PF motor.
- PF motor extension cable exchange.
- C362DRV board exchange.

SERVICE REQ. 00010003: PF MOTOR IN POSITION TIME OUT

☐ Problem
When be it locateds stable at the time of halt processing with the PF motor control, (the in position time) the position control inside period did not improve.

☐ Solution

- PF motor exchange
- PF encoder exchange
- PF timing belt exchange
- C362DRV board exchange

SERVICE REQ. 00010004: CR ENCODER CHECKING ERROR

☐ Problem
CR motor encoder check error
The CR motor makes small revolutions clockwise and counter-clockwise. When it turns, the printer checks the encoder output signals to make sure the motor is turning at the correct speed/distance. If the encoder doesn't send the correct signal or output data, an error occurs.

- Encorder cable disconnection
- Encoder sensing phase A or B misconnection
- Encoder connector disconnection
- Motor cable disconnection
- Motor cable misconnection

☐ Solution
It confirms whether there is not abnormal load etc. at the time of carriage migration and be abnormal no and do the checking of the CR encoder, in the case that the error is not canceled.

In the case that there is abnorm :
Carry out the tension of the steel belt adjustment or CR motor exchange.

In the case that there is not abnorm :
Confirm whether there are not dirt and damage in the CR encoder.
The cable connector joint to the CR encoder and head Assy board CN15 are confirmed.

Encoder pulse detection for T fence (scale 180a) of it comes off/whether or not there is not the contact with a CR encoder

- Confirmation of the dirt/paper powder/damage of the confirmation T fence (scale 180a) the top
- CR encoder exchange
- CR motor exchange
- C362DRV board exchange

SERVICE REQ. 00010005: CR MOTOR STEP-OUT

☐ Problem
The rotational speed of the CR motor abnormal. (it is long/short period at the time of prescription).

☐ Solution
It confirms whether there is not abnormal load etc. at the time of carriage migration and be abnormal no and do the checking of the CR encoder, in the case that the error is not canceled.

In the case that there is abnormality:

- Encoder pulse detection for T fence (scale 180a) of it comes off/whether or not there is not the contact with a CR encoder
- Tension adjustment of the confirmation steel belt
- Confirmation of the dirt / paper powder / damage of the T fence (scale 180a) the top
- CR encoder exchange
- CR motor exchange
- C362DRV board exchange

SERVICE REQ. 00010006: CR MOTOR OVER CURRENT

☐ Problem
CR motor overcurrent - Feedback from the CR motor (IC33) driver's 10-pin output (Sense signal) indicates that the CR motor's current is irregular.

☐ Solution

- He resistance value (5.56Ω) the measurement of the n CR motor. In the case that the CR motor exchange motor coil is short condition if there is abnormality exchange.C362DRV board exchange even the C362DRV board
- C362DRV board exchange

SERVICE REQ. 00010007: CR MOTOR IN POSITION TIME OUT

☐ Problem
When be it locateds stable at the time of halt processing with the CR motor control, (the in position time) the position control inside period did not improve.

☐ Solution

- Tension adjustment of the n steel belt
- CR encoder exchange
- CR motor exchange
- C362DRV board exchange

SERVICE REQ. 00010008: SERVO INTERRUPTION WATCH DOG TIME OUT ERROR

☐ Solution

- C362DRV board exchange
- C362MAIN board exchange

SERVICE REQ. 00010009: SYSTEM INTERRUPTION WATCH DOG TIME OUT ERROR

Not supported.

SERVICE REQ. 0001000A: CR ORIGIN (HOME POSITION) SENSOR MULFANCTION

☐ Problem
The carriage (CR_) HP detection sensor is abnormal.

☐ Solution

- Cleaning of the CR_HP detection sensor
- Whether or not CR_HP detection sensor cable is jointed to the C362DRV board (CN43) confirmation CR_HP detection sensor exchange
- CR_HP sensor exchange
- C362DRV board exchange

SERVICE REQ. 0001000B: PF ORIGIN (HOME POSITION) SENSOR MULFANCTION

Not supported.

SERVICE REQ. 0001000C: HS ORIGIN (HEAD SLIDE HOME POSITION) SENSORS MALFUNCTION

☐ Problem

- Head SLID starting point sensor failure
- Sensor is in trouble.
- Head slide motor, motor connector or cable is in trouble.
- Gears are not engaged.

☐ Solution
It confirms whether the detection actuation such as the adhesion, dirt of ink are prevented in the sensor surface and be abnormal no and check the SLID starting point sensor, in the case that the error is not canceled.

In the case that there is abnormality:

- Cleaning of the SLID starting point detection sensor
- Head SLID starting point detection sensor cable be confirmation whether or not it is jointed to the C362DRV board (CN52).
- Head SLID starting point detection sensor exchange
- C362DRV board exchange

SERVICE REQ. 0001000D: COVER SENSOR MULFANCTION
SERVICE REQ. 0001000E: COVER SENSOR MULFANCTION

☐ Solution
The sensor attachment location of the 2 pieces of right and left are confirmed. In the case that the error is not canceled in spite of proper location the cover opening detection sensor is checked.

In the case that there is abnormality:

- It confirms whether n cover sensor cable is jointed to the C362DRV board (CN4/5).
- Cover sensor exchange
- C362DRV board exchange

SERVICE REQ. 0001000F: CR MOTOR OVER HEAT (PWM OUTPUT MALFUNCTION)

☐ Problem
PWM signal adds CR motor for a static time. This means the motor is having any load continuously.

☐ Solution

- Confirmation of the dirt/paper powder/damage of the confirmation T fence (scale 180a) the top
- CR encoder exchange
- CR motor exchange
- C362DRV board exchange

SERVICE REQ. 00010010: PF MOTOR OVER HEAT (PWM OUTPUT MALFUNCTION)

☐ Problem
PWM signal adds PF motor for a static time. This means the motor is having any load continuously.

☐ Solution

- PF timing belt tension confirmation/adjustment
- PF roller and PF roller subordinate movement.
- PF timing belt replacement
- PF motor replacement
- C362DRV board replacement

SERVICE REQ. 00010011: PAPER JAM

Not supported.

SERVICE REQ. 00010012: CAP ORIGIN (HOME POSITION) ERROR

☐ Problem

- Starting point detection error or cap starting point sensor defective treatment by cap motor step-out.
- Cap home position sensor is in trouble.
- Cap motor is in trouble, motor connector is disconnected or cable is disconnected. S

☐ Solution

- Cable splicing confirmation between the cap starting point sensor and CSCI board
- Sensor exchange
- Cap/pump unit exchange

SERVICE REQ. 00010013: PROVIDING SYSTEM ORIGIN ERROR

☐ Problem

- It is defective the starting point detection error or providing system starting point sensor by the motor step-out of ink pump Assy.
- Providing home position sensor is in trouble.
- Providing motor , motor connector or cable is in trouble.

☐ Solution

- Supply system motor exchange
- Supply system starting point sensor exchange
- C362DRV board exchange

SERVICE REQ. 00010014: PRESSURE DEFECTIVE ERROR

☐ Problem.

- It is defective the pressure detection error or pressure sensor by providing system motor step-out.
- Pressure sensor is in trouble.
- Providing motor defective, motor connector or motor cable disconnected
- Air pressure reeked between providing pump and I/C cartridge

☐ Solution

- Regulator valve solenoid exchange
- Supply system motor exchange
- Sensor exchange
- C362DRV board exchange

SERVICE REQ. 00010015: LIQUID SENSOR OVERFLOW (K)
SERVICE REQ. 00010016: LIQUID SENSOR OVERFLOW (C)
SERVICE REQ. 00010017: LIQUID SENSOR OVERFLOW (M)
SERVICE REQ. 00010018: LIQUID SENSOR OVERFLOW (LC)
SERVICE REQ. 00010019: LIQUID SENSOR OVERFLOW(LM)
SERVICE REQ. 0001001A: LIQUID SENSOR OVERFLOW(Y)

☐ Problem

Surface of a liquid sensor defective or I/C valve solenoid defective it is (on condition).

☐ Solution

- I/C valve solenoid exchange
- C362DRV board exchange
- Printhead exchange

SERVICE REQ. 0001001B: HEAD DRIVER (TG) TEMPERATURE ERROR

☐ Problem

Head failure or head cable splicing defective/breaking of wire

☐ Solution

- Head cable joint
- Head Assy exchange

SERVICE REQ. 0001001C: FS ORIGIN (SUCTION FAN SHUTTER HOME POSITION) ERROR

☐ Problem

Starting point detection error or shutter starting point sensor defective o treatment by shutter motor step-out.

☐ Solution

- Adsorption fan shutter motor exchange
- C362DRV board exchange
- Shutter home point sensor exchange
- Shutter mechanism check

SERVICE REQ. 0001001D: CR SERVO PARAMETER ERROR

☐ Problem

Load continues to be linked to the CR motor. /CR motor defective.

☐ Solution

- Do the same correspondence as service call 00010004.

SERVICE REQ. 0001001E: PF SERVO PARAMETER ERROR

☐ Problem

Load continues to be linked to the PF motor. / PF motor defective

☐ Solution

- Do the same correspondence as service call 00010000.

SERVICE REQ. 00010020: CSIC READ/WRITE ERROR

☐ Problem

The information of CSIC (the ink cartridge) is not correct.

☐ Solution

- Ink cartridge is installed/ exchange

SERVICE REQ. 00010021: STARTER CARTRIDGE ERROR

☐ Problem

TBD

☐ Solution

TBD

SERVICE REQ. 00010022: INK NVRAM STATUS ERROR (C362DRV SETTING)

☐ Problem

- The ink type setting in C362DRV board is set except dye or pigment.
- CSIC detection level is OFF (ED MODE=0), but Ink cartridge type is Neutral (Refer to Table 1-41, “Maintenance mode 2 setup items,” on page 55.)

☐ Solution

- Correct ink cartridge is fixed.

SERVICE REQ. 0010023:RTC OPERATION ERROR

☐ Problem

TBD

☐ Solution

TBD

SERVICE REQ. 0010024:MODULE COMMUNICATION TIME-OUT ERROR

☐ Problem

TBD

☐ Solution

TBD

SERVICE REQ. 0010025:CSIC EEPROM ACCESS ERROR

☐ Problem

TBD

☐ Solution

TBD

SERVICE REQ. 0010026:RTC ACCESS ERROR

☐ Problem

TBD

☐ Solution

TBD

SERVICE REQ. 00020000:NVRAM ERROR
SERVICE REQ. 00020001:NVRAM COMPARISON ERROR
SERVICE REQ. 00020002:SDRAM ERROR
SERVICE REQ. 00020003:FLASH MEMORY ERROR

☐ Problem
Abnormal detection in a corresponding element

☐ Solution

1. Once save parameter to Flash memory card and install it to the printer again.
2. C362DRV board. replacement

SERVICE REQ. 00020004: ASIC ILLEGAL VERSION ERROR

☐ Problem

The ASIC version on the C362DRV board is not correct.

☐ Solution

- C362DRV board replacement

SERVICE REQ. 00020005: FIRMWARE ASIC MISMATCHING
SERVICE REQ. 00020006: FIRMWARE BSIC MISMATCHING

☐ Problem

ASIC and firmware on the C362DRV board are not corresponding.

☐ Solution

- Exchange the C362DRV board, whether or not n correct firmware is installed.

SERVICE REQ. 00020007:HAED/ASIC MISMATCH ERROR

☐ Problem

TBD

☐ Solution

TBD

SERVICE REQ. 00020009:FLASH MEMORY CHECK SUM ERROR

☐ Problem

Program area check sum error in Flash memory.

☐ Solution

- C362DRV board replacement
- Program reinstall

SERVICE REQ. 0002000B: INTERNAL MEMORY STORAGE ERROR

☐ Problem
Faulty of the firmware

☐ Solution

- Reinstall firmware.

SERVICE REQ. 0002000C: REVIEW ERROR

☐ Problem

The Dip-SW binding on the C362DRV board is not in accord with a program version.

☐ Solution

- Dip-SW binding modification or correct program are installed.

SERVICE REQ. 00030000-00030013:DEBUG (PROGRAM ERROR)

☐ Problem

TBD

☐ Solution

TBD

SERVICE REQ. 00030015: INK SUPPLY DEFECTIVE (K)
SERVICE REQ. 00030016: INK SUPPLY DEFECTIVE (C)
SERVICE REQ. 00030017: INK SUPPLY DEFECTIVE (M)
SERVICE REQ. 00030018: INK SUPPLY DEFECTIVE (LC)
SERVICE REQ. 00030019: INK SUPPLY DEFECTIVE (LM)
SERVICE REQ. 0003001A: INK SUPPLY DEFECTIVE (Y)

☐ Problem

Even if Isupply it ink the surface of a liquid sensor does not become full.

It does not become defective (on I/C valve solenoid) or the surface of a liquid sensor defective

☐ Solution

- I/C valve solenoid exchange
- C362DRV board exchange
- Surface of a liquid sensor exchange

SERVICE REQ. 0003001B:GAP ADJUSTMENT RANGE ERROR

☐ Problem

It is the adjustment value that is not able to adjust it to a hard target.

☐ Solution

- Gap (Bi-D, Uni-D) adjustment is done over again.

SERVICE REQ. 0003001C:TIME-OUT IN CASE OF NO PRINT FINISH WITH ASIC

☐ Problem

TBD

☐ Solution

TBD

SERVICE REQ. D0120013: MODULE COMMUNICATION ERROR

☐ Problem

It causing from communication error between C362MAIN, C362DRV and HJFK board).

☐ Solution

- Confirm the connection between the boards, especially HJFK board.

SERVICE REQ. D012001E: ENGINE SIDE ASIC COMMAND TRANSMISSION OVER FLOW
SERVICE REQ. D012001F: ENGINE SIDE ASIC COMMAND RECEIPT OVER FLOW

☐ Problem

TBD

☐ Solution

TBD

SERVICE REQ. D0XXXXXX: THE PROGRAM ERROR

☐ Problem

The error (the program error) that is not anticipating it

☐ Solution

- Program retouch

SERVICE REQ. 100000E0 : CPU ADDRESS ERROR
SERVICE REQ. 10000100 : CPU ADDRESS ERROR
SERVICE REQ. 10000180 : CPU RESERVATION INSTRUCTION CODE EXCEPTION ERROR
SERVICE REQ. 100001A0 : CPU SLOT UNFAIR COMMAND EXCEPTION ERROR
SERVICE REQ. 100005C0 : CPU DMA ADDRESS ERROR
SERVICE REQ. 10000XXX : CPU ERROR

☐ Problem

Faulty of board defective or program

☐ Solution

- It confirms whether stand once again and raise the n power supply and reproduce. In the case that it reproduces it is C362MAIN or C362DRV board exchange.

3.4 Troubleshooting Based On Printout

This section describes conceivable print quality problems that may occur with this printer and the troubleshooting points for those errors.

Table 3-31. Diagnosing trouble based on printout

Item	Description	Refer to
1	Dot missing	3.4.1
2	Uneven printing/poor resolution	3.4.2
3	Smudged or marred printout on front side	3.4.3
4	Smudged or marred printout on reverse side	3.4.4
5	White/black banding	3.4.5

3.4.1 Dot Missing

When the printer is not used for a long period of time, the ink in the nozzles can dry up and clog the nozzles. Clogged nozzles cannot fire ink and cause the dot-missing problem in printed documents. If the printhead nozzles do not clear after attempting multiple cleaning operations, check the following points.

CAUTION

Do not charge ink too often as this operation consumes a lot of ink. Each head consumes about 90ml per operation.

I do confirmation about the next point, in the case that be defective head cleaning and early period and be not able to return.

a)In the case that the faulty occurs to all the ink color nozzles.

- Are the cap of the print head and cleaning unit adhering at the time of ink fill?
- Gear/motor actuation of the cleaning unit defective
- Dirt of the cap felt/vacuum cleaner head of the cleaning unit:

b)In the case that the faulty occurs to special ink color.

- Dirt of the n head vacuum cleaner
- Failure of the n print head that abnormal (the in stream etc. by looseness, or O-ring transformation/damage of a fixed nut are conceivable) the joint department between the n ink cartridge-ink holder-tube-damper-print head
- Failure of the n print head that abnormal

c)In the case that it is not recovered the faulty with the item to here) c exchanging the

following electricity system corresponding part I do confirmation.

- It exists (the joint and damage of FFC long) CR cable/it is the confirmation of no.
- C362DRV board

CAUTION

- **Before you remove the Main Board or a printhead, make sure all cables are disconnected. After installing the new board or head, make sure all cables are properly connected; if cable connectors not completely inserted, they can damage circuits or the heads when current is turned on.**
- **Make sure you replace the correct head, B head or C head.**

3.4.2 Uneven Printing / Poor Resolution

If printout quality suffers from unevenness, poor quality, or similar problems, check the following.

1. Perform platen gap adjustment
   Using the control-panel setting or the diagnostic-program function, check the platen gap (bi-directional printing position as well as PG adjustment).
2. If this error occurs only when the user prints on custom or thick paper, (Use the control panel paper thickness setting to correct the paper size and the print position (depending on the paper-thickness setting, the location where the ink strikes the paper may change))
3. With "maintenance mode 2], the correction value of "BI-D offset # 1 (speed priority)/# 2 (quality priority)" tries to be changed.
4. In the case that this faulty occurred as soon as I exchanged the C362DRV board
   - Doing the transplantation of the back-up parameter of an old board.
   - "D/A Correction value writing" is run with the diagnostic operation mode.

5. If after following the above steps the printout quality has not improved, verify the following.
   - Head angle adjustment
   - Head height adjustment

CHECK POINT **When using the “Adj.B (or C) Head Slant” as well as the “Adj:PG Check Height” functions, always perform the Gap Adjustment or Bi-directional Position Adjustment operation.**

3.4.3 Smudged or Marred Printout (Front)

The front, or top, side of the paper can become smudged or marred if it rubs against the printhead surface. If this happens, verify the following.

1. If the smudged area is just around the front or rear edge of roll paper, make sure the margins (top and bottom) are set to 15mm on the control panel.
   (When printing high-duty print jobs with the top and bottom margins set to 3mm, the high volume of ink can cause the paper to warp and rub against the printhead surface.)
2. If the weak form that is not able to pass inside smoothly, select the "Low" of suction fan control from User paper setting menu.
3. Smudged or marred because of the late dryness with the user form.
   - Adjust the "Dry time (the printing end to paper cut time) " from User paper setting menu. (Dry time :default 0 minute. Maximum is 30 minutes).
4. In the case that it is not able to solve the faulty with the above method, wipe the ink that adhered to the cap and also vacuum cleaner head of the cleaning unit.

3.4.4 Smudged or Marred Printout (Reverse side)

Confirm the following item, in the case that the dirt by ink occurs to the form back.

1. It confirms whether ink is not adhering on the form conveyance path and wipe in the case that there is ink adhesion.

- Sub platen surface
- PF roller surface
- Paper guide L surface

2. Because the following factor is conceivable, as the cause that ink adhered to the above part it confirms.

- Form obliqueness line in the printing (1 page improving point in)

CAUTION **The printing is carried out to the platen face, when the form size binding of the user is not correct, in the case that "Printer binding"->"Panel binding menu"->"Form depth detection"/"the obliqueness line error detection" the binding is off.**

3.4.5 White or Black Banding

If white or black banding (lines across the page) appear on your printout, try the following.

1. Printing run of "the nozzle checking pattern"

   In the case that it is normal, perform the head slant adjustment (Refer to “Head slant adjustment” on page 200.)
2. In the case that it is not a causing from dot missing. Perform the following adjustment.
   - Head inclination adjustment

     White between shading/raster line occurs, by the overlapping or location difference of the raster line that are composed/print by each nozzle, when each nozzle line absent to direct location to carriage run direction.
   - Head slant adjustment
   - Bi-D adjustment
   - Head Gap adjustment
   - Head Rank input

CHAPTER

4

DISASSEMBLY & ASSEMBLY

4.1 Summary

This section describes the Disassembly and assembly methods for the EPSON Stylus Pro 10000/10000CF. However, full assembly instructions are not given apart from following the Disassembly instructions in reverse order, and where special instructions are necessary, reassembly points are provided.

Where “Caution” and “reassembly” notes are given, be sure to confirm these contents BEFORE starting the corresponding procedure. Where adjustment procedures are necessary, “Adjustment Required” notes describe what you need do to. These adjustment procedures are absolutely necessary and are described in detail in Chapter 5.

4.1.1 Warnings

Before proceeding with any Disassembly or assembly work, make absolutely sure of the following.

WARNING

- **The power switch is located on the control panel. Any time the printer is plugged into a power outlet, power is suppling through the PS board. Unless otherwise stated, always turn off the printer, wait several seconds, and then unplug the power cable from the outlet before servicing a printer.**
- **For safety reasons, the front cover position is automatically detected by the cover-open sensor which is an interlock switch. Do not block or modify this sensor.**
- **A lithium battery is installed on the MAIN Board of this printer. Be sure to observe the following instructions when servicing the battery:**
  - Keep the battery away from any metal or other batteries so that electrodes of the opposite polarity do not come in contact with each other.
  - Do not heat the battery or put it near fire.
  - Do not solder on any part of the battery. (Doing so may result in leakage of electrolyte from the battery, burning or explosion. The leakage may affect other devices close to the battery.)
  - Do not charge the battery. (An explosion may be generated inside the battery, and cause burning or explosion.)
  - Do not dismantle the battery. (The gas inside the battery may hurt your throat. Leakage, burning or explosion may also be resulted.)
  - Do not install the battery in the wrong direction. (This may cause burning or explosion.)

WARNING

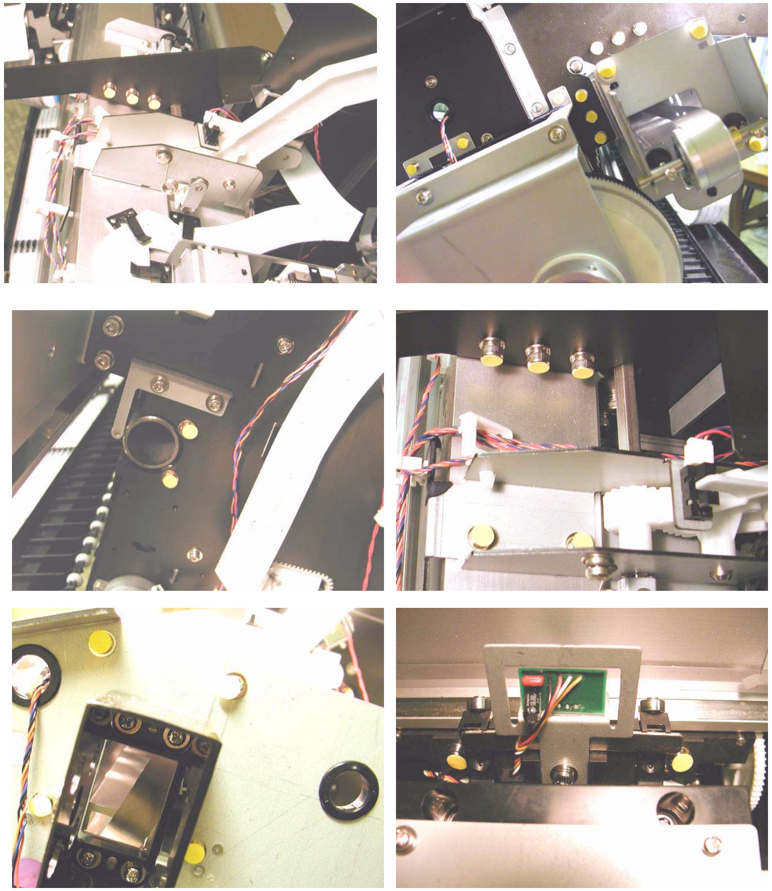
- If ink gets on your hands, wash them thoroughly with soap and water. If ink gets in your eyes, rinse them immediately with water.
- If it is necessary to remove external printer parts while the printer is turned on, be very careful around movable or spinning parts such as the carriage and fans.
- Keep in mind that the carriage drive belt and cutter blade can be dangerous.
- Always ware gloves for disassembly and assembly to avoid injury from sharp metal edge.

WARNING

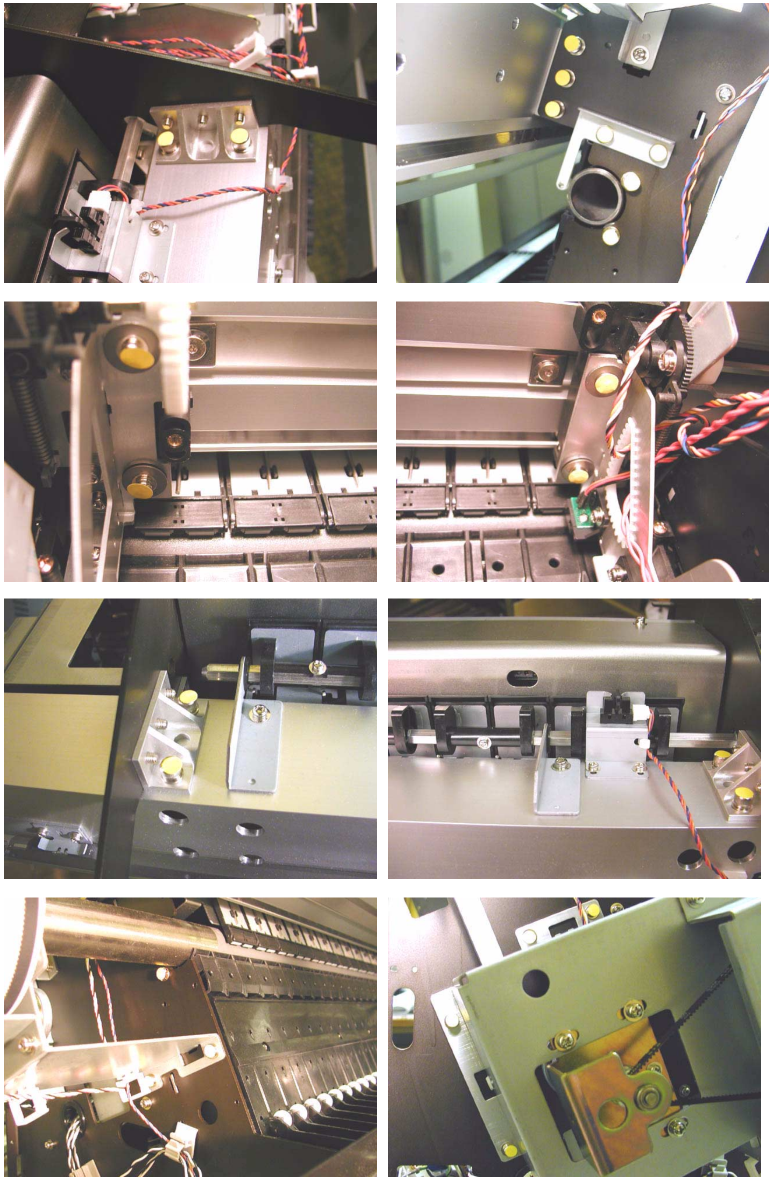
Danger of explosion if the battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacture. Dispose the used batteries according to government's law and regulations.

WARNING

Do not remove and loosen the screw of the part that showed it below. There is the danger that is impossible adjustment in the field and cause a new obstacle and also become a reconditioning impossibility.



WARNING



CAUTION

- Before servicing or performing maintenance on the printer, make sure you have enough space. If you need to move the printer, be sure the space you move to is safe.
- Because the printer is much heavier than most printers (about 115Kg with stand), you need to take extra care. If you need to take apart the printer and stand or lift the printer, two persons are necessary.
- After removing any of the ink related parts, double check to make sure all parts are secured; otherwise you’re going to be in big trouble.
- When attaching the tube to the coupling that the O-ring is not transforming is confirmed. Also, tighten the nut with # E589 torque set wrench. Looseness and tighten too much becomes ink leakage.
- Ink may leak onto other printer parts or the printer basket when removing printer parts, so it is recommended to put a sheet or cloth under the printer, especially when working on or near ink-related parts.
- When working on the electrical circuit boards, be careful concerning static electricity which can cause damage to the board. It is recommended you use an anti-static wrist band or similar grounding device to prevent static electricity buildup.
- When removing/re-inserting the flat-cable (FFC) from/to a connector, make sure to pull/insert the cable at a 90 degree angle to the connector. Otherwise, internal contact of the leads may be damaged and this can cause a short-circuit.
- Do not touche with the empty hand and soil the O-ring that is in the joint of a ink system. There is the possibility that causes the ink leakage.

CAUTION

- **When replacing connector wires, be careful to replace the entire length of the wire exactly as you found it; rubbing against edges or moving parts can cause noise in the wires.**
- **The cutter blade is very hard and can damage or scratch printer parts, and it can also be chipped or damaged. Be careful when handling or replacing the cutter.**
- **If you have to loosen a screw that has blue screw-lock applied to its head, make sure you apply blue screw-lock again when reassembling.**
- **When tight the screw that has no tightening torque value, secure it not to make screw loosen.**

CHECK POINT

- **If you find it is necessary to perform service on a part not described in this chapter, be sure to check the after-service parts situation before beginning the service.**
- **If necessary (i.e. when transporting the printer) use the above mentioned mode to drain ink, install the discharge cartridges (P/N:1060627), and then perform an initial ink charge with the fluid. Enter the transportation mode again to remove the fluid (user can do) and then perform initial ink charge with ink.**
- **The directional instructions in this chapter are given as if viewing the printer from the front. See the illustration below.**

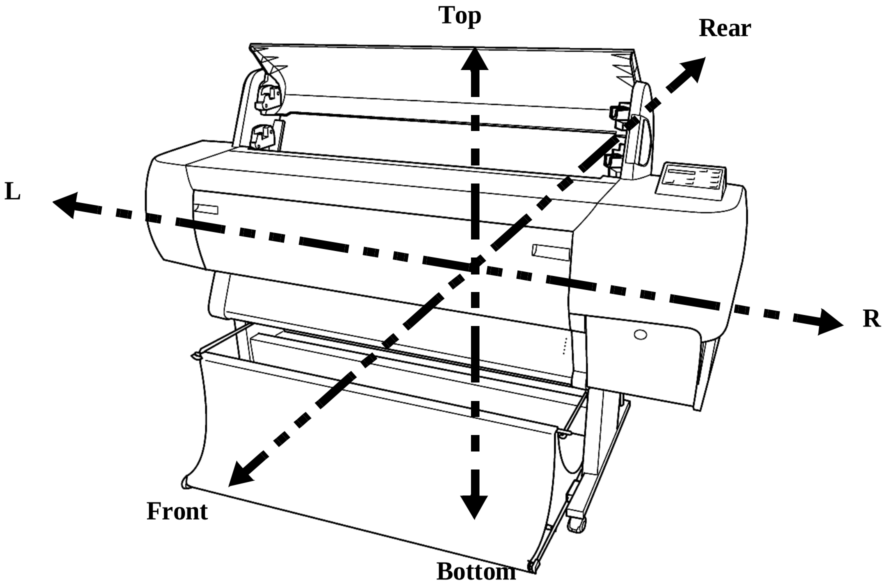


Figure 4-1. Directional View of the Printer

4.1.2 Tools

The tools needed for the Disassembly/assembly of this machine be the Chapter 5- 5.1.2 clause reference.

4.1.3 Screw List

The following table lists all the screws used in this printer.

Table 4-1. Screws

Type	Color	Description
CB M3x6	white	(+) Bind
CBP M3x6	silver	(+) Bind P-tight
CBP M4x10	black	(+) Bind P-tight
CBS M3x10	white	(+) Bind S-tight
CBS M4x6	white	(+) Bind S-tight
CBS M2x8	white	(+) Bind S-tight
CBS M3x6	white	(+) Bind S-tight
CBS M4x8	white	(+) Bind S-tight
CS M3x6	white	(+) Cup screw S-tight
CS M4x6	white	(+) Cup screw S-tight
CS M4x8	white	(+) Cup screw S-tight
CS M3x6	white	(+) Cup screw S-tight
CPP M3 x8	white	(+) Crosshead Pan P-tight
CPS M3x12	white	(+) Crosshead Pan S-tight
CP M3x6	white	(+) Crosshead Pan
CP(W) M2x12	silver	(+) Crosshead Pan, washer
CP(W) M2x8	silver	(+) Crosshead Pan, washer
CP(W) M3x6	silver	(+) Crosshead Pan, washer
CP(W)M3x8	silver	(+) Crosshead Pan, washer
CP(W)M3x25	silver	(+) Crosshead Pan, washer

Table 4-1. Screws (continued)

Type	Color	Description
CP(W)M4x8	silver	(+) Crosshead Pan, washer
CP(W)M4x10	silver	(+) Crosshead Pan, washer
CP(W)M4x40	silver	(+) Crosshead Pan, washer
Dish screw M3x6	white	(+) Dish
Truss screw M4x8	white	(+) Truss screw
Toothed washer M3	white	outer teeth
Toothed washer M4	white	outer teeth

4.2 Disassembly Flow

Refer to the following flowchart when determining the Disassembly flow.

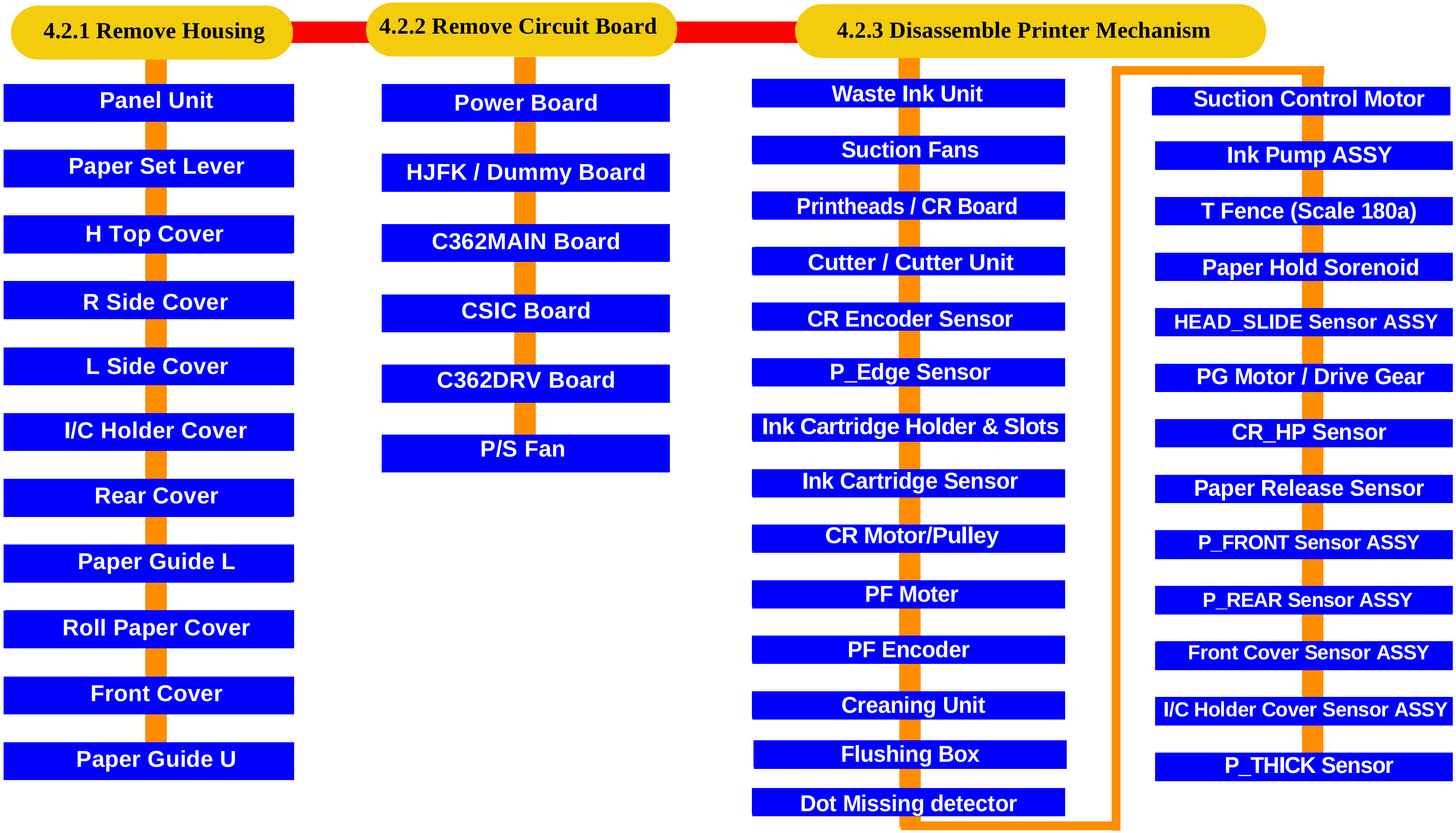
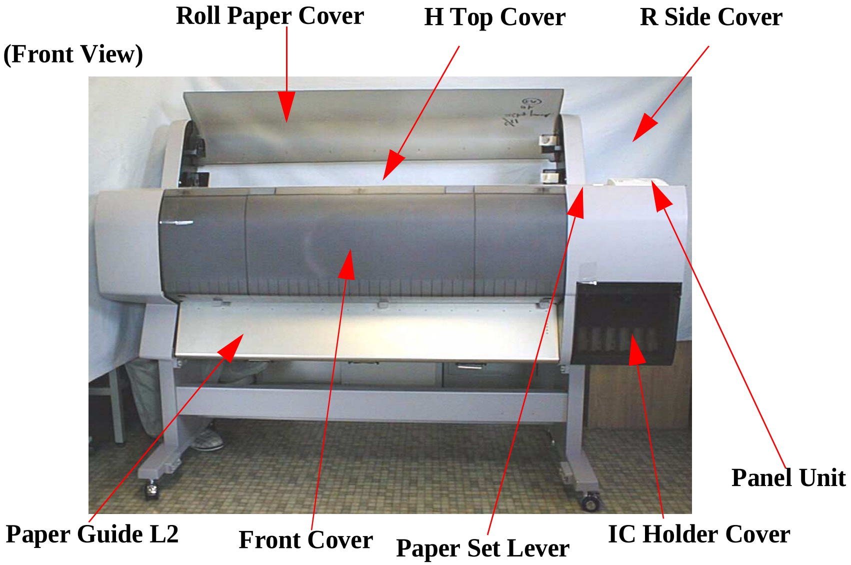

4.2.1 Remove Housing
Panel Unit
Paper Set Lever
H Top Cover
R Side Cover
L Side Cover
I/C Holder Cover
Rear Cover
Paper Guide L
Roll Paper Cover
Front Cover
Paper Guide U
4.2.2 Remove Circuit Board
Power Board
HJFK / Dummy Board
C362MAIN Board
CSIC Board
C362DRV Board
P/S Fan
4.2.3 Disassemble Printer Mechanism
Waste Ink Unit
Suction Fans
Printheads / CR Board
Cutter / Cutter Unit
CR Encoder Sensor
P_Edge Sensor
Ink Cartridge Holder & Slots
Ink Cartridge Sensor
CR Motor/Pulley
PF Moter
PF Encoder
Creaning Unit
Flushing Box
Dot Missing detector
Suction Control Motor
Ink Pump ASSY
T Fence (Scale 180a)
Paper Hold Sorenoid
HEAD_SLIDE Sensor ASSY
PG Motor / Drive Gear
CR_HP Sensor
Paper Release Sensor
P_FRONT Sensor ASSY
P_REAR Sensor ASSY
Front Cover Sensor ASSY
I/C Holder Cover Sensor ASSY
P_THICK Sensor

Figure 4-2. Disassembly Process Flowchart

4.2.1 Removing the Housing

This sections describes the removal procedure for printer housing parts. See below for an illustration of the housing parts.

(Front View)


Roll Paper Cover
H Top Cover
R Side Cover
Panel Unit
Paper Guide L2
Front Cover
Paper Set Lever
IC Holder Cover

(Rear View)

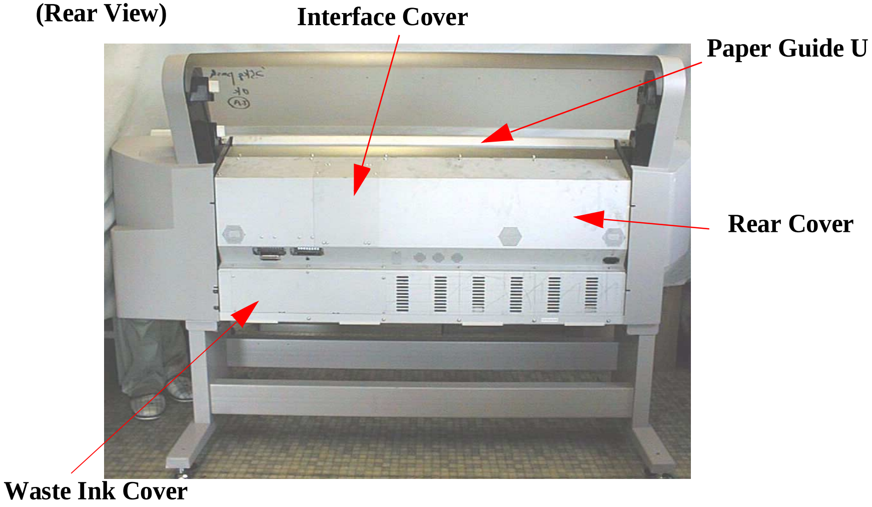

Interface Cover
Paper Guide U
Rear Cover
Waste Ink Cover

Figure 4-3. Housing Part Diagram

4.2.1.1 Panel Unit Removal

1. Push the clips (Refer to Figure 4-5.) on both sides of the panel unit and pull slightly away from the R Side Cover.

① Push it toward you.

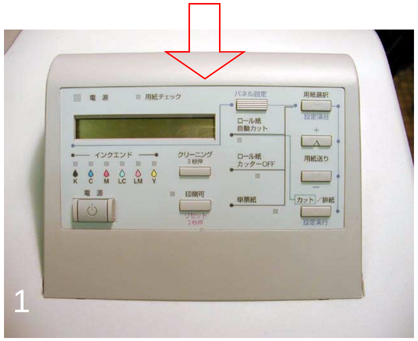


Figure 4-4. Panel Unit Removal 1/2

② Lift it up

③ Lift it up then turn over.

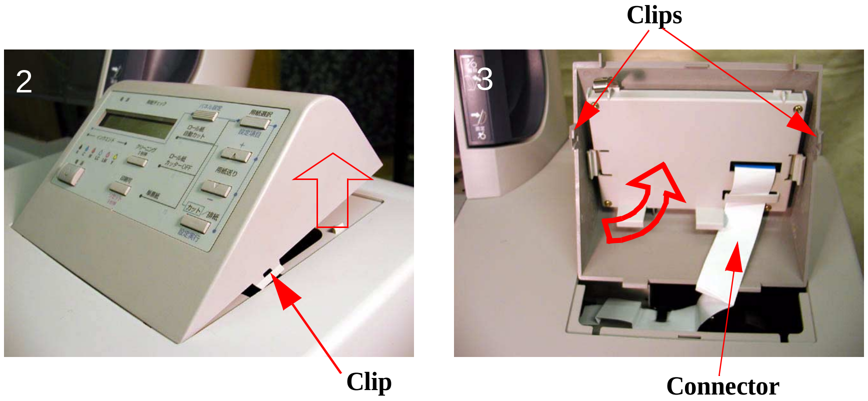

Clips
2
3
Clip
Connector

Figure 4-5.

CHECK POINT

You may find it easy to remove the panel unit if you stand on the front of the printer and use both hands to pull (squeeze) the panel towards then lift up. (Refer the above figures and arrow directions. This way you remove first the rear-side hook, then you can easily remove it.

2. Remove the FFC cable from the connector and hook.

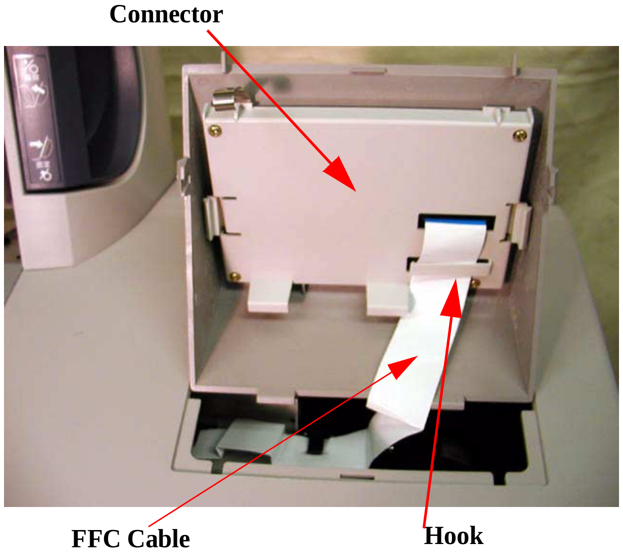


Figure 4-6. Panel Unit Removal 2/2

3. Remove nine screws then remove the panel board.

Figure 4-7.

REASSEMBLY

When replacing the panel board and FFC, make sure you push the FFC cable slack inside and towards the rear of the printer to avoid interfering with carriage movement.

When installing the panel unit, place the grounding plate under the R-side cover then push and lock it to the R side cover.

4.2.1.2 Paper Set Lever Removal

1. Remove the R Side Cover.(Refer to “R Side Cover Removal 124.)
2. Lift up the “Paper Set Lever” to the released position.
3. Remove two screws (CBP:M4 x 10) and remove the “Pressure lever knob”.

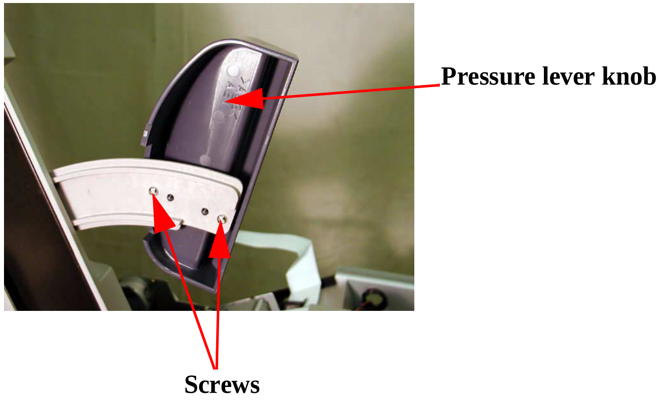

Pressure lever knob
Screws

Figure 4-8.

4. Remove therr screws (CBP:M4 x 10) and remove the “R guide cover”

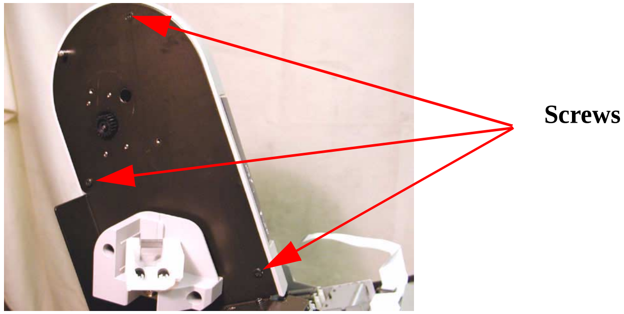


Figure 4-9.

5. Remove a E ring fixing Paper set lever on the axis.

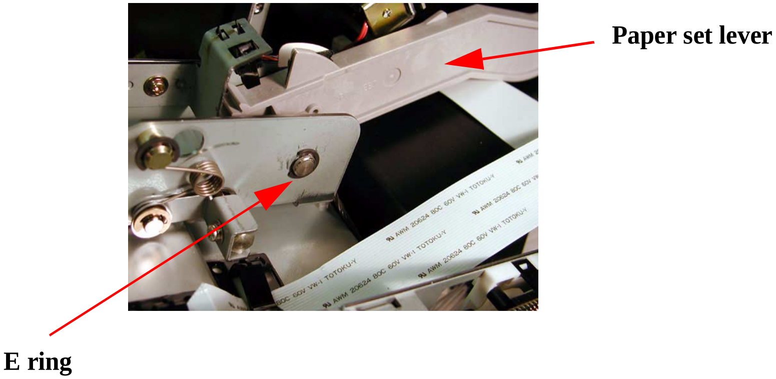

Paper set lever
E ring

Figure 4-10.

6. Sliding the axis to the left and remove Paper set lever.

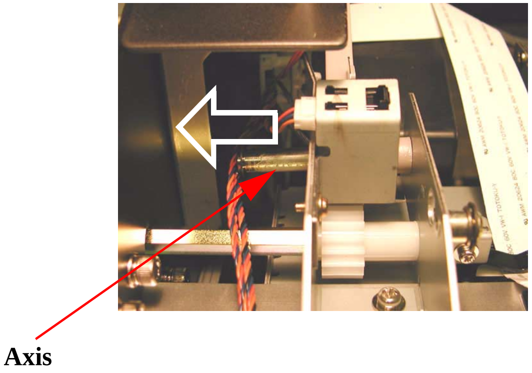


Figure 4-11.

4.2.1.3 H Top Cover Removal

1. Open Front cover and Roll paper cover
2. Remove top side four screws (CS : M4x8), then remove front side two screws (CS : M4x8).

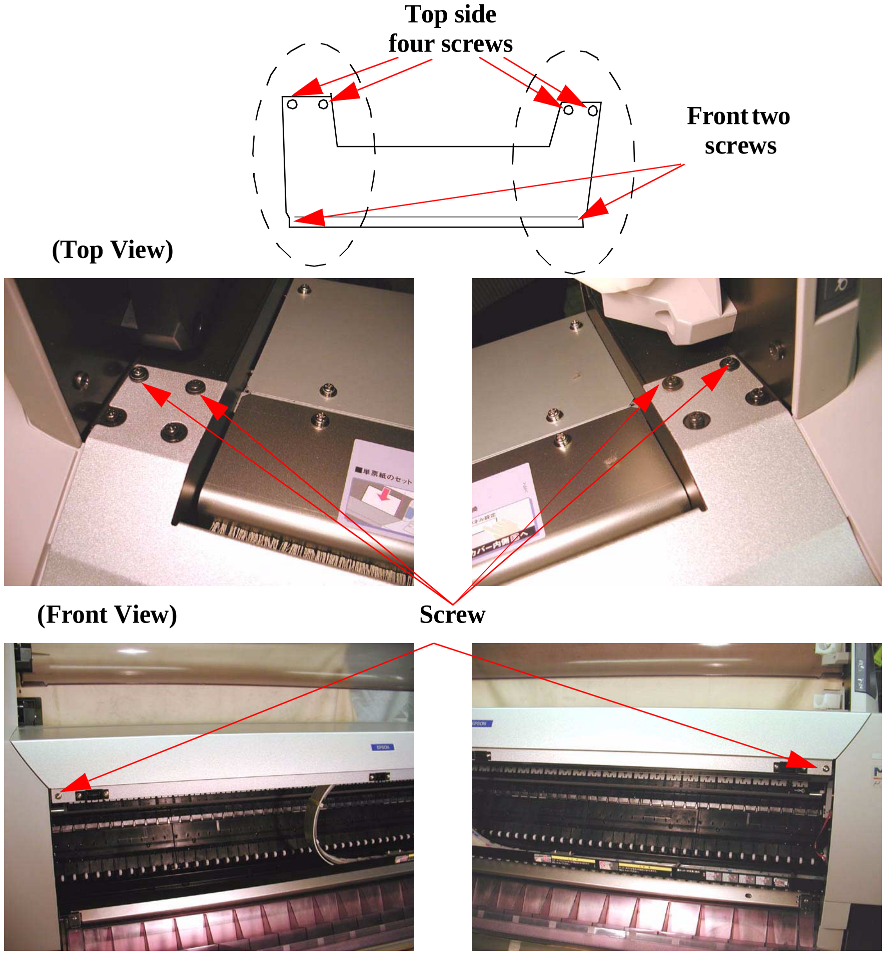

Top side
four screws
Front two
screws
(Top View)
(Front View)
Screw

Figure 4-12.

3. Remove the H top cover by pulling up and toward the front.

CAUTION

Make sure the left and right grounding plates do not get bent during the disassembly / assembly process.

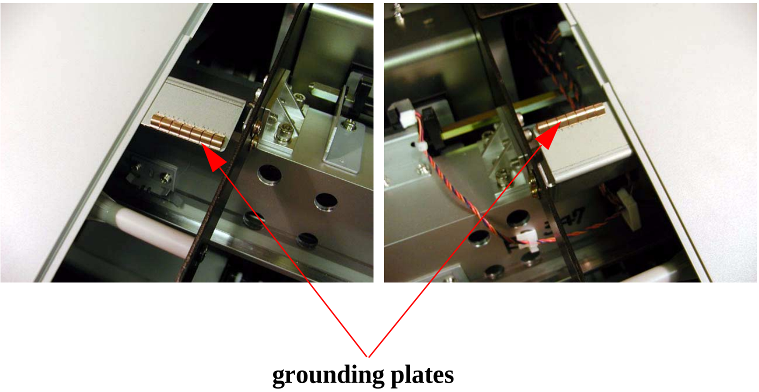

grounding plates

Figure 4-13.

4.2.1.4 R Side Cover Removal

1. Remove the panel unit and H Top Cover. (Refer to “Panel Unit Removal 120. and “H Top Cover Removal 123.)
2. Remove rear side two white screws (CS:M4x8).

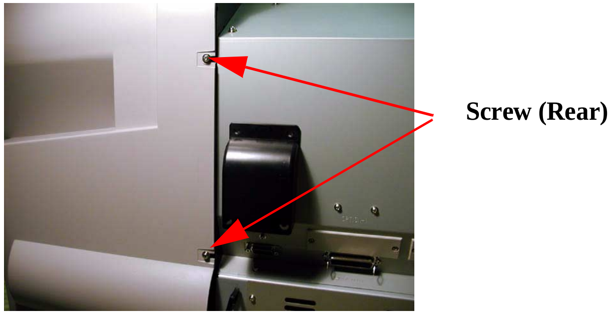


Figure 4-14.

3. Remove right side two white screws (CS:M4x8).

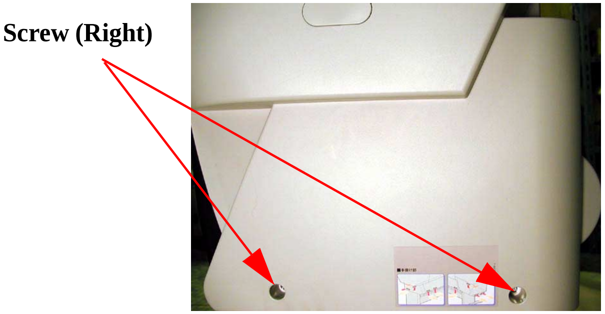


Figure 4-15.

4. Slide the R side cover to the right and remove it.

4.2.1.5 L Side Cover Removal

1. Remove the H Top Cover as described in paragraph 4.2.1.3 (“H Top Cover Removal”).
2. Remove rear side two white screws (CS:M4x8).

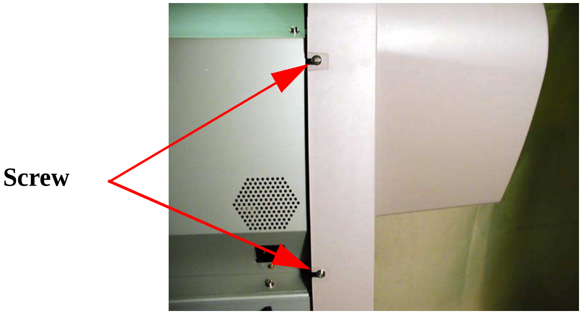


Figure 4-16.

3. Remove left side three white screws (CS:M4x8).

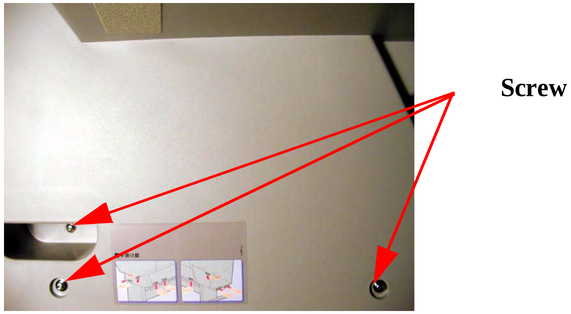


Figure 4-17.

4. From the inside, remove two black screws (CS:M4x8) .

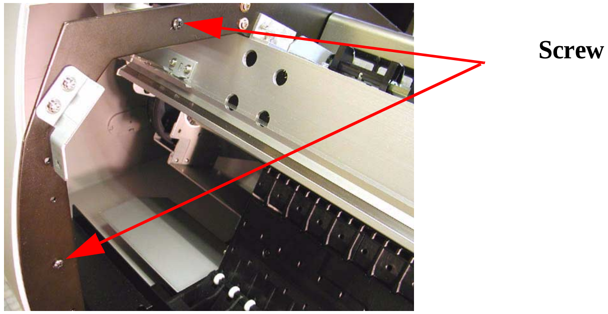


Figure 4-18.

5. Slide the L side cover to the left and remove it.

4.2.1.6 I/C Holder Cover Removal

1. Remove “R side Cover”. (Refer to “R Side Cover Removal 124.)
2. Open I/C Holder cover.
3. Remove two screws fixing the R inside cover, then remove it.

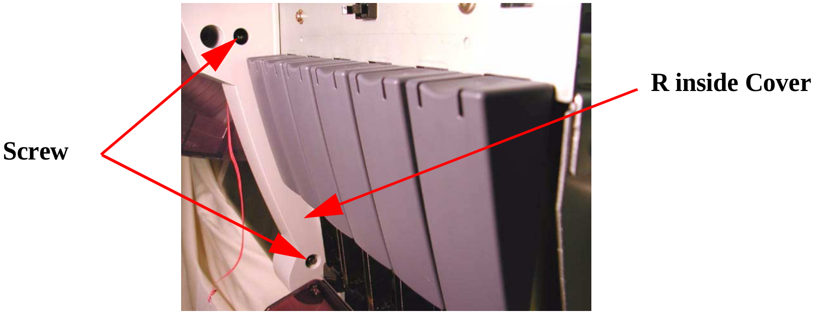


Figure 4-19.

4. Remove three screws fixing the hinges.

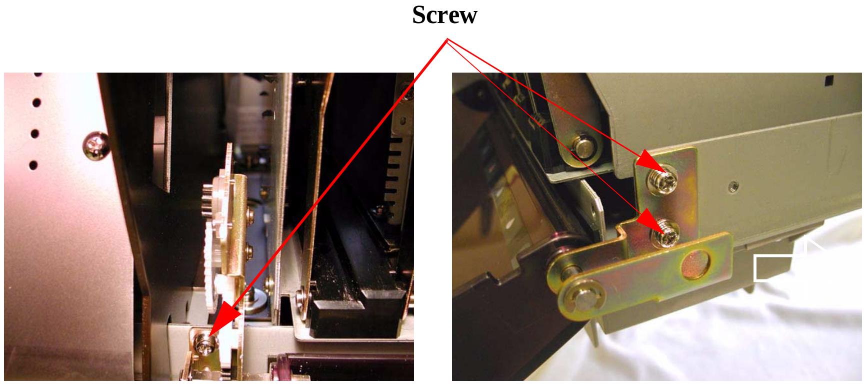


Figure 4-20.

5. Opening I/C holder cover by pushing the central upper part (the cover latch location) of it,then remove I/C holder cover with the hinge of the right and left.
6. Removing the E ring, then I/C holder cover and slowing-down gear are separated.

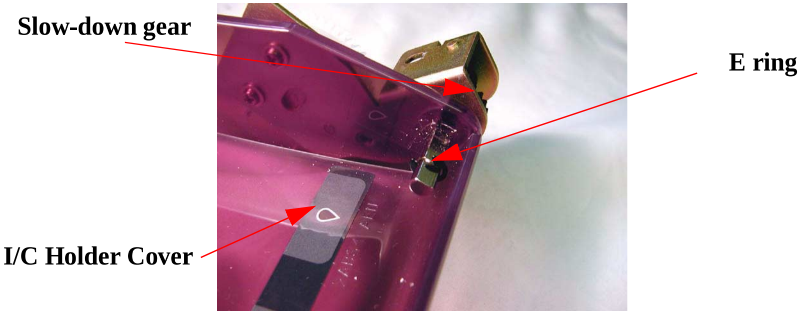

Slow-down gear
E ring
I/C Holder Cover

Figure 4-21.

CHECK POINT **When installing the “I/C Holder Cover”, make sure the position of cover latch and cover interlock are placed correctly with frame.**

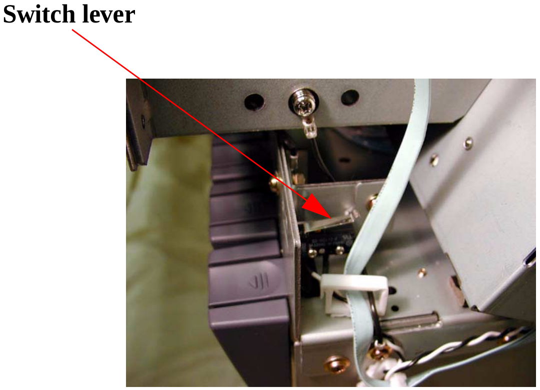

Switch lever

Figure 4-22.

4.2.1.7 Rear Cover Removal

1. From the rear, remove four white screws (CPS:M3x12) securing the optional interface cover, and remove the optional interface cover.

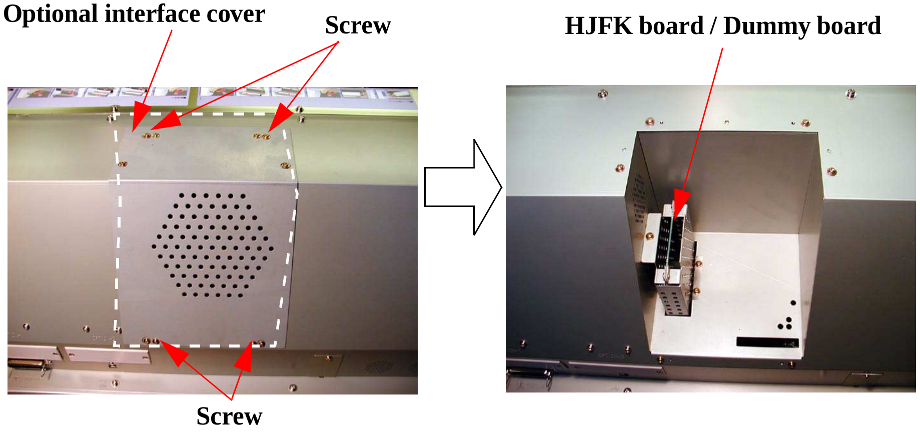

Optional interface cover
Screw
HJFK board / Dummy board
Screw

Figure 4-23.

2. Removing (CBS: 1 M3x6) the screw fixing HJFK (Dummy) board, then extract HJFK (Dummy) board.

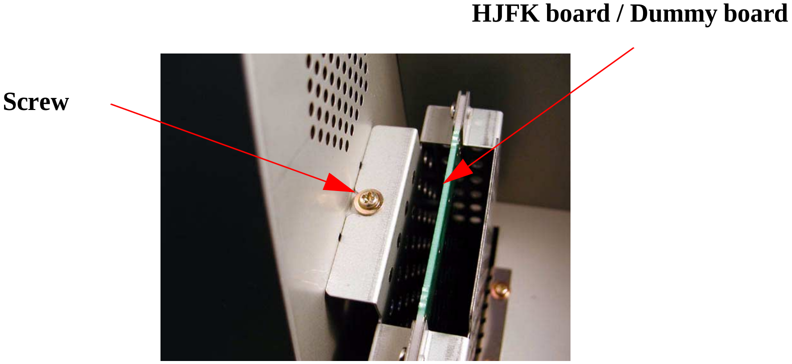

HJFK board / Dummy board
Screw

Figure 4-24.

3. Remove two white screws (CBS:M4x6) fixing the parallel interface, one white screw (CBS:M3x6) fixing the USB interface, one screw fixing the serial interface, four screws fixing the option cover 1, 2, and four screws fixing the option 1,2.

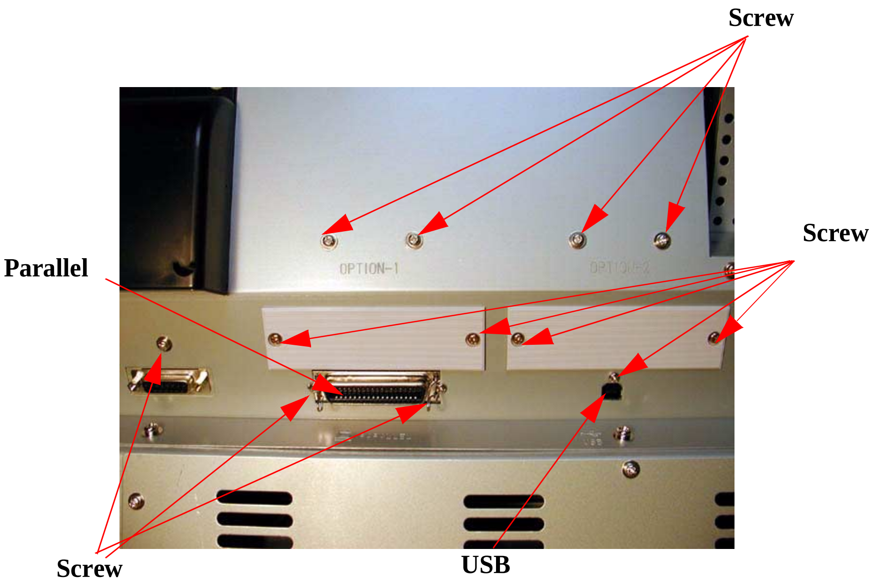

Screw
Screw
Parallel
Screw
USB

Figure 4-25.

4. Remove one screw fixing the battery cover.

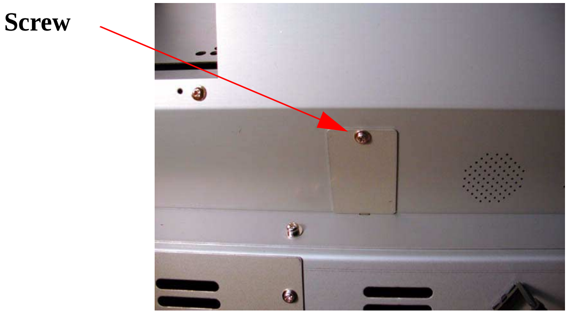


Figure 4-26.

5. Remove one white screw fixing the AC inlet.

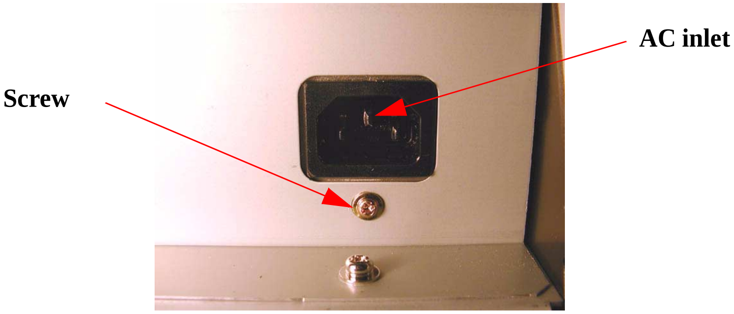

AC inlet
Screw

Figure 4-27.

6. Remove six white screws fixing the cover lower part, then remove eight white screws fixing the cover upper part.

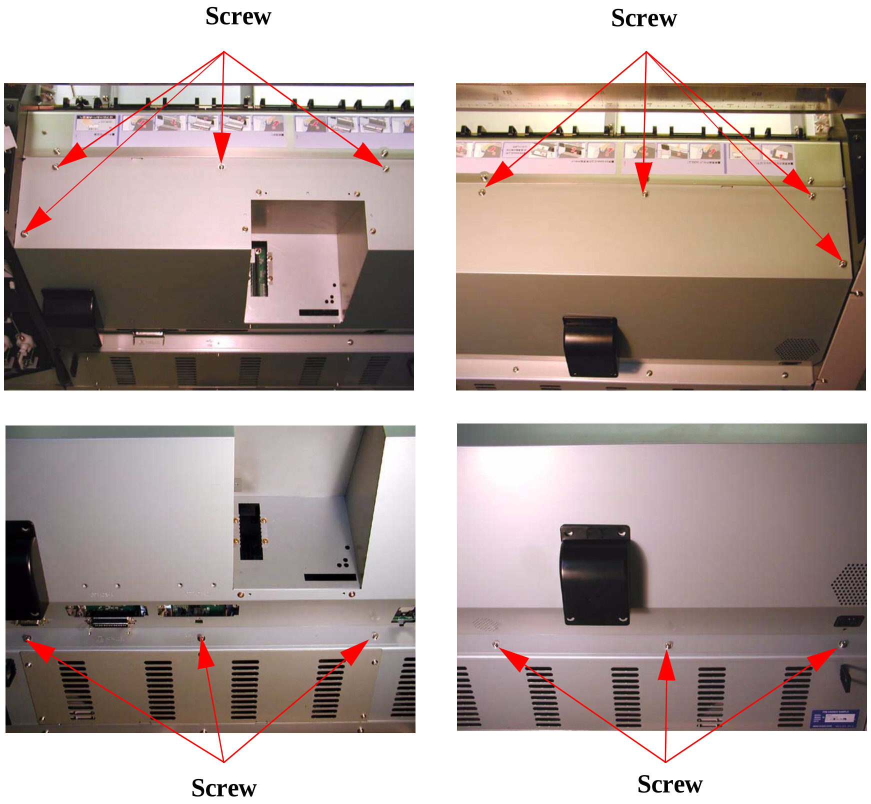

Screw
Screw
Screw
Screw

Figure 4-28.

7. Lift up the rear cover, then remove it.

4.2.1.8 Paper Guide L Removal

1. Hold the “Paper Guide L2” with tape or stand in order to protect the drop with next step.

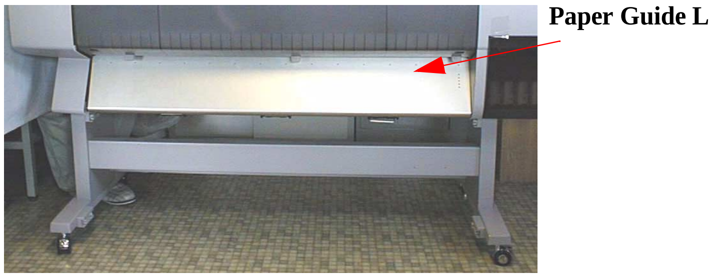

Paper Guide L

Figure 4-29.

2. From the bottom, remove six white screws (Truss:M4x6).

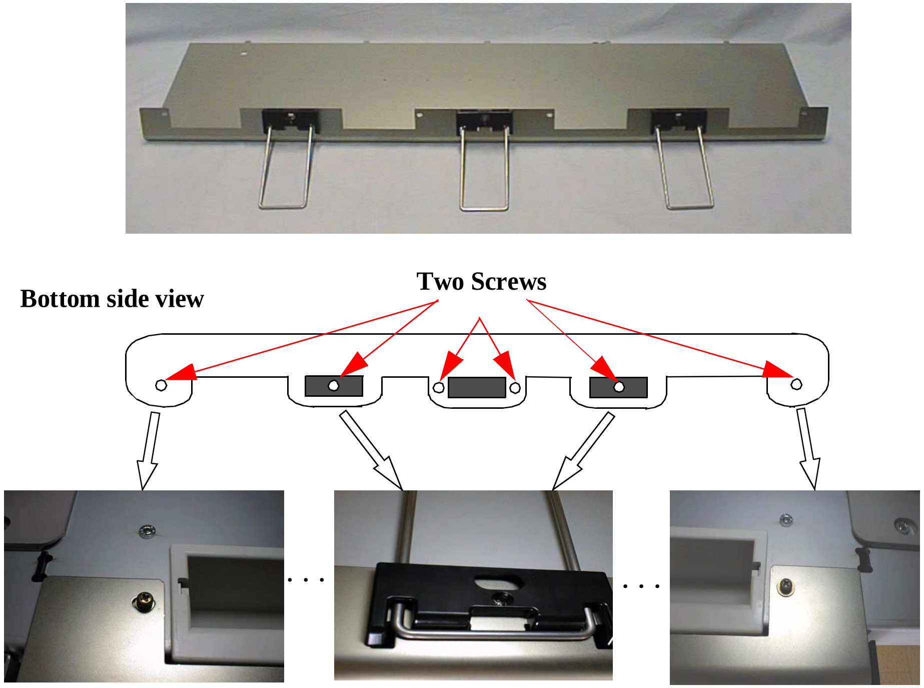
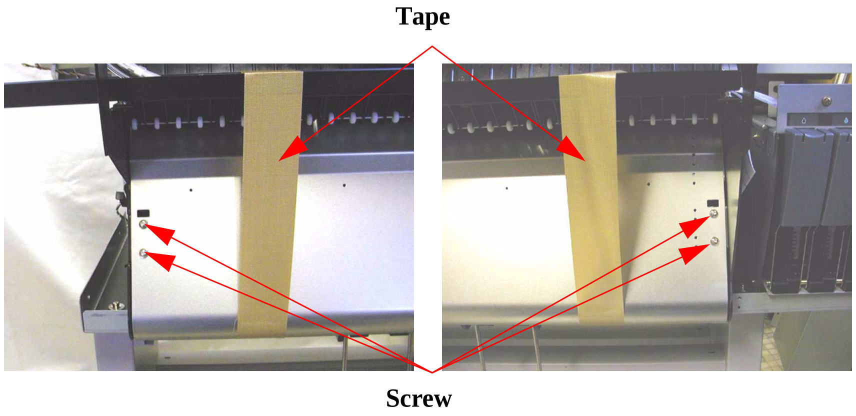

Bottom side view
Two Screws

Figure 4-30.

3. Remove front four white screws , then remove the Paper Guide L.



CAUTION

To avoid injury and paper guide L damage, make sure the protection of drop with proper method.

REASSEMBLY

When installing the Paper Guide L, make sure the five tabs at the top end slide into the hole of “Sub platen”. Then secure with the screws.

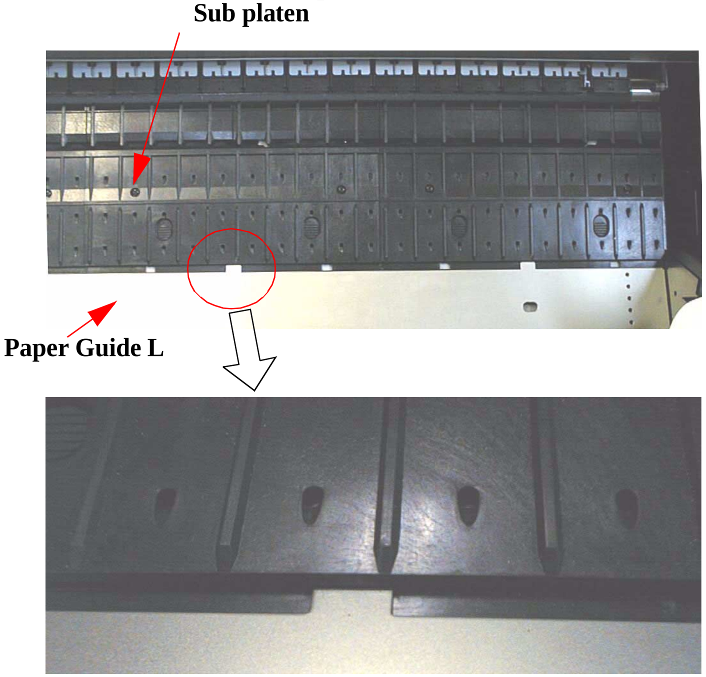


Figure 4-31.

If just one of the tabs is not inserted properly, roll paper will most likely still feed normally, but cut sheets might not.

4.2.1.9 Roll Paper Cover Removal

1. Open the roll cover
2. Remove the upper and lower roll paper with roll shaft.
3. Remove two screws on the left roll holder and remove the left roll holder.

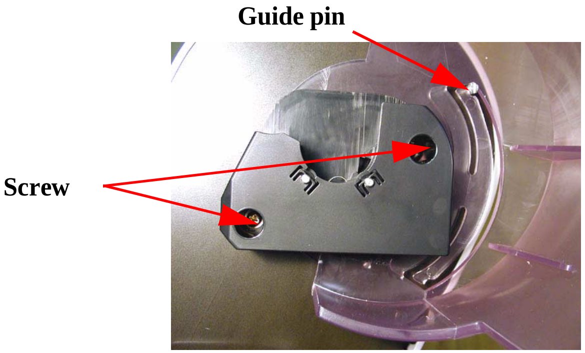


Figure 4-32.

4. Remove two screws on the right roll holder and remove the right roll holder.

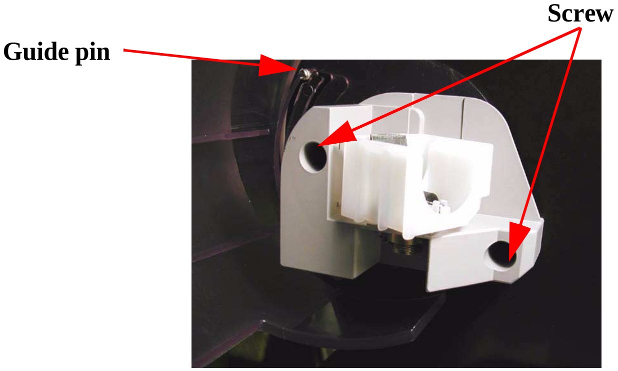


Figure 4-33.

5. Slide the Roll paper cover, then remove it.

4.2.1.10 Front Cover Removal

1. Remove the R Side Cover.(Refer to “R Side Cover Removal 124.)
2. Remove the L Side Cover.(Refer to “L Side Cover Removal 124.)
3. Remove the I/C Holder Cover. (Refer to “I/C Holder Cover Removal 125.)
4. Open the Front Cover.
5. Remove two hexagon screws on both side.

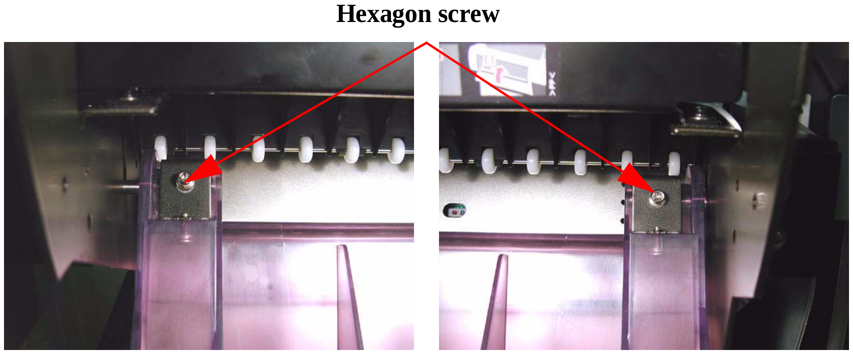


Figure 4-34.

6. Remove two screws fixing the Hinge unit L.

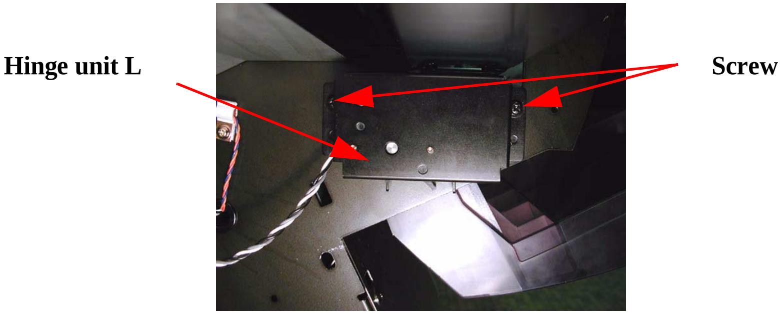


Figure 4-35.

7. Remove the Hinge unit L with Hinge.
8. While supporting the Front cover, lower the left side and slide to left, then remove the Front cover.

When removing / installing, hold the "Front Cover" with your hand and do not drop it.

- **When installing the "Front Cover", make sure the shape of cover springs. (Shape are different with right and left.)**
- **Confirm the movement of the cover and operation of the cover-open sensor (mounted inside of right hinge unit) .**
- **When installing, make sure the shape (D cut) of shaft on the both hinge unit then align the shaft hole on the Front Cover.**

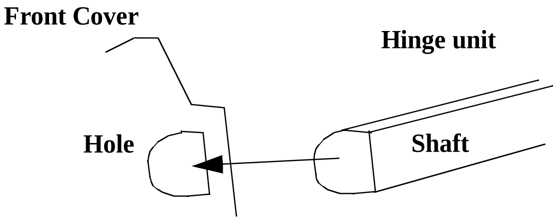

Front Cover
Hinge unit
Hole
Shaft

Figure 4-36.

4.2.1.11 Removing Paper Guide U

1. Remove the R Side Cover as described in paragraph 4.2.1.3.
2. Remove the L Side Cover as described in paragraph 4.2.1.4.
3. Remove the H Top Cover as described in paragraph 4.2.1.6.
4. Remove the Rear Cover as described in paragraph 4.2.1.7.
5. Remove the six screws (CS:M4x8) securing Paper Guide U.

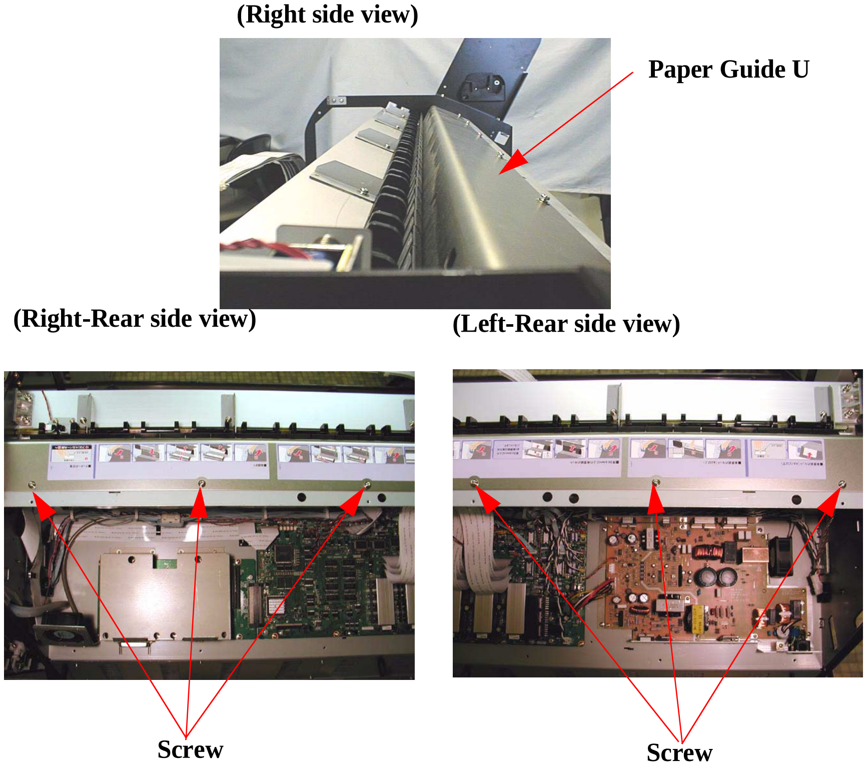

(Right side view)
Paper Guide U
(Right-Rear side view)
(Left-Rear side view)
Screw
Screw

Figure 4-37.

6. Remove the FFC from rear side.

7. Remove six screws (CS:M4x8) securing “Paper Guide U” from rear side.

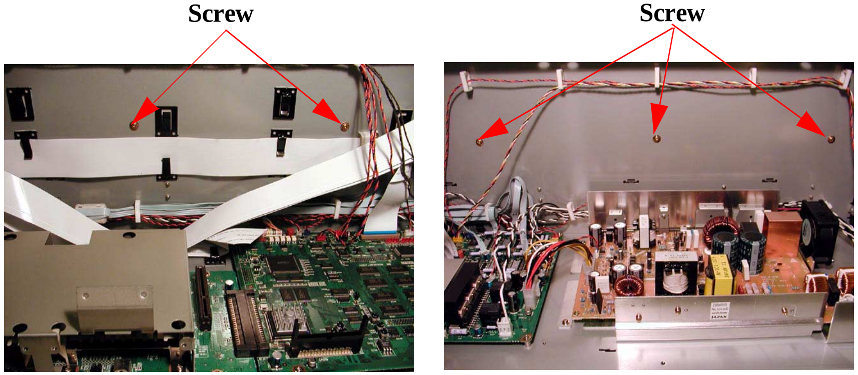

Screw
Screw

Figure 4-38.

8. Push the paper hold lever to the front.

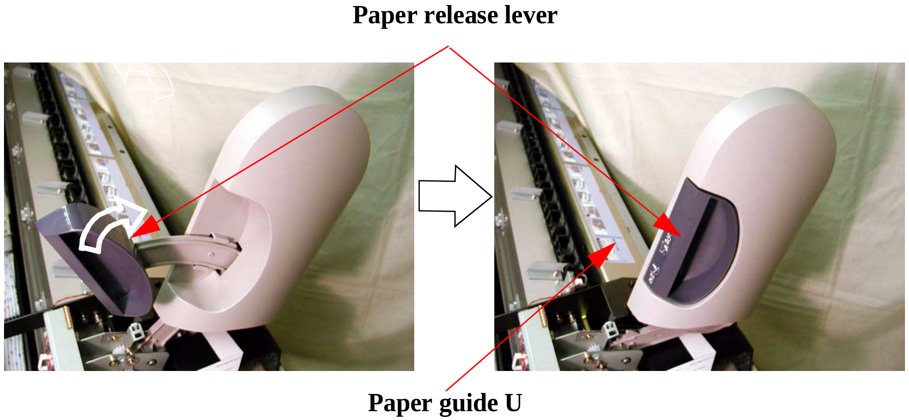

Paper release lever
Paper guide U

Figure 4-39.

9. Remove the “Paper Guide U” by pulling upward.

CAUTION

When removing / installing the Paper Guide U, do not touch the P_Rear Sensor.

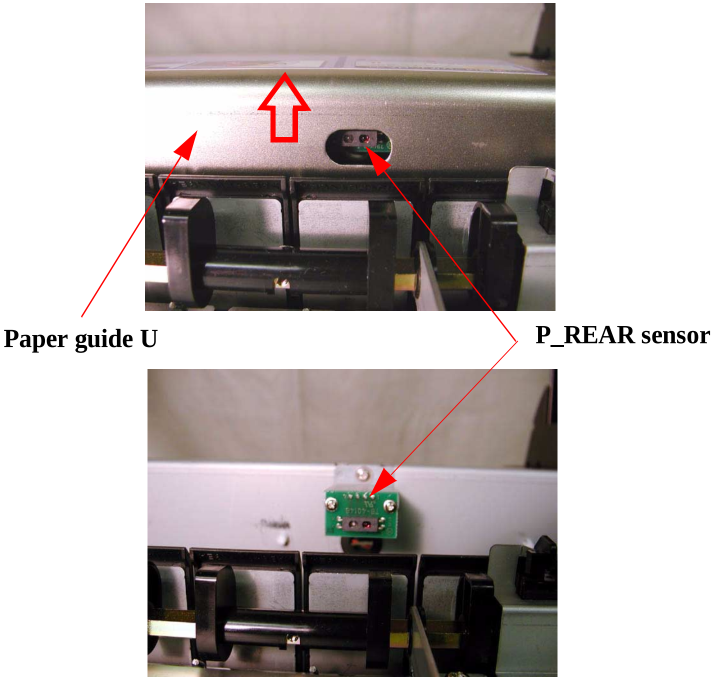

Paper guide U
P_REAR sensor

Figure 4-40.

4.2.2 Circuit Board Removal

This section explains how to remove the Power Board, the HJFK / Dummy Board, the C362MAIN Board, the CSIC Board, the C362DRV Board and the P/S Fan.

4.2.2.1 Power Board Removal

WARNING

Unplug the AC power cable and wait at least five minutes before removing the power board to make sure there is no residual power left in the board's condensers.

1. Remove the Rear Cover as described in "Rear Cover Removal" paragraph 4.2.1.7.
2. Remove the three cables connected to the Power Board as shown below.

Table 4-2. Power Board Connectors

Connector #	Pins	Color	Connection	Notes
CN2	3	BIK/R/ORG	C362DRV Board CN56	
CN3			None	
CN4	12	YEI/BRN/RED/ BIU/ORG/BIK	C362DRV Board CN40	

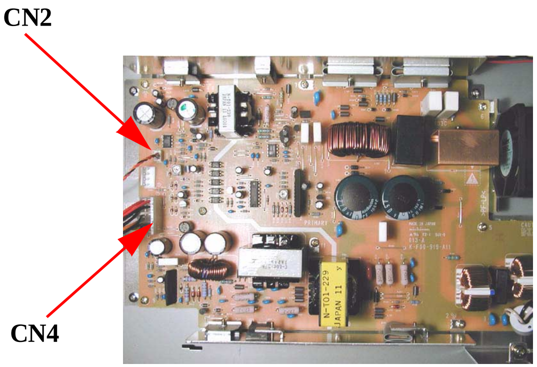


Figure 4-41.

3. Disconnect the P/S self-containing fan connector connected to CN39 on the C362DRV board.

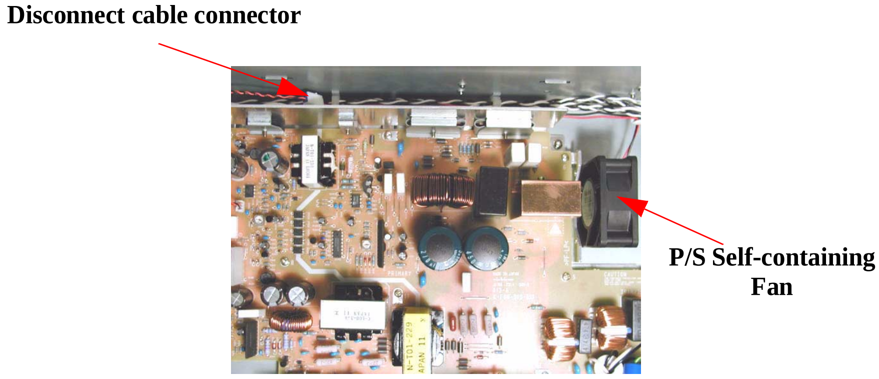

Disconnect cable connector
P/S Self-containing Fan

Figure 4-42.

4. Remove the four white screws (CPS:M3x8) securing the Power Board, and then remove the Power Board.

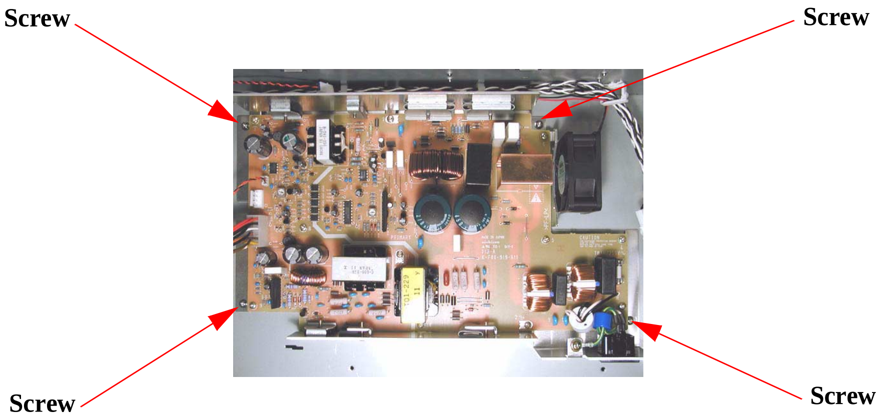

Screw
Screw
Screw
Screw

Figure 4-43.

4.2.2.2 HJFK / Dummy Board Removal

(Any of the HJFK board or the Dummy board of the option are fixed.)

1. Remove the rear cover as described in “Rear Cover Removal” (Paragraph 4.2.1.7.)
2. Pull off the “Option block” to the upward.

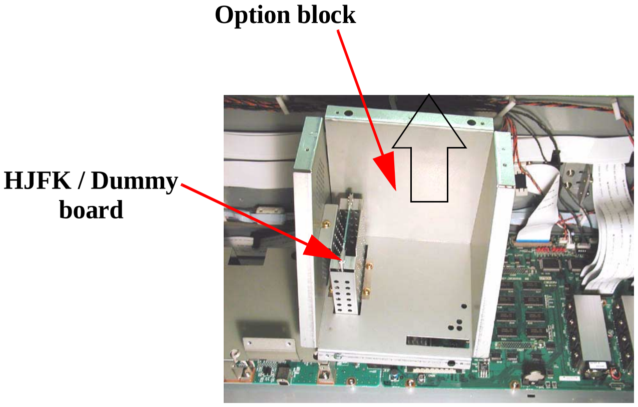

Option block
HJFK / Dummy board

Figure 4-44.

3. Remove one screw (CS:M3 x 6) then remove the board ASSY.

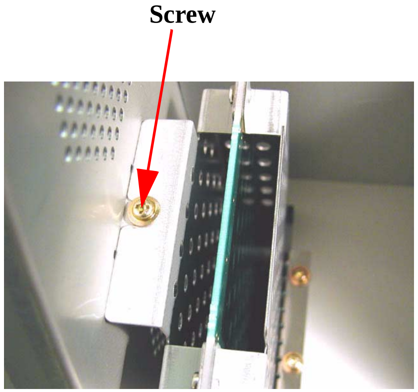


Figure 4-45.

4.2.2.3 C362MAIN Board Removal

1. Remove the HJFK / Dummy Board on the I/F bracket.
2. Remove eight screws on the I/F bracket, then remove the I/F bracket and two earth plate.

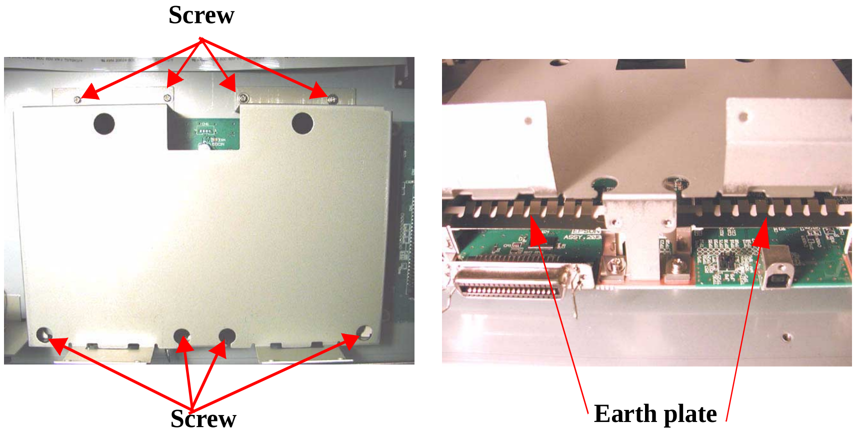

Screw
Screw
Earth plate

Figure 4-46.

3. Remove six screws on the "Interface Board".

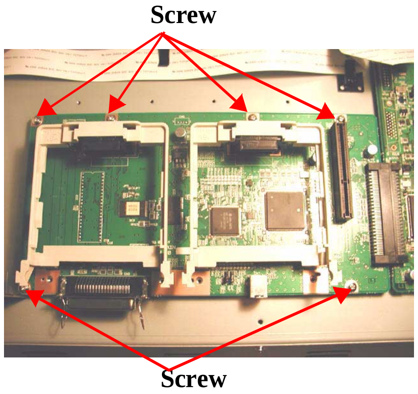

Screw
Screw

Figure 4-47.

4. Slide to the left and unplug the CN1 connection to the main board.

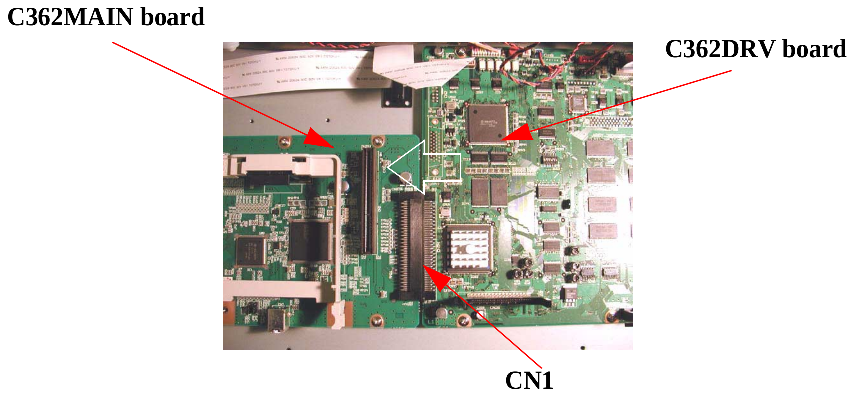

C362MAIN board
C362DRV board
CN1

Figure 4-48.

5. Unlock and push the four hooks from solder side.

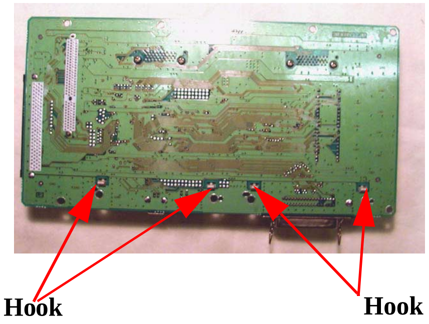


Figure 4-49.

6. Unlock the four fooks on the connector CN4 and CN5 then remove two guides.

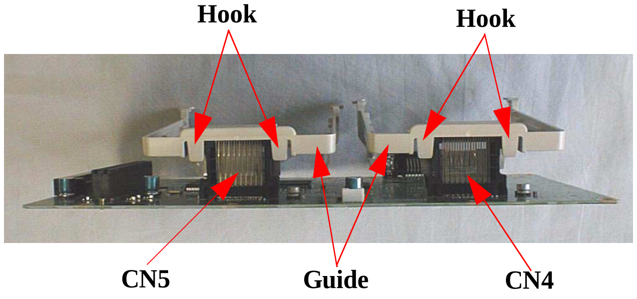

Hook
Hook
CN5
Guide
CN4

Figure 4-50.

CAUTION

When replacing the "Interface Board", make sure followings.

- **Use same type of ROM on the IC2.**
- **Do not exchange the mounting position of option board. (Option board will be connect to the CN4/CN5 card slot.)**

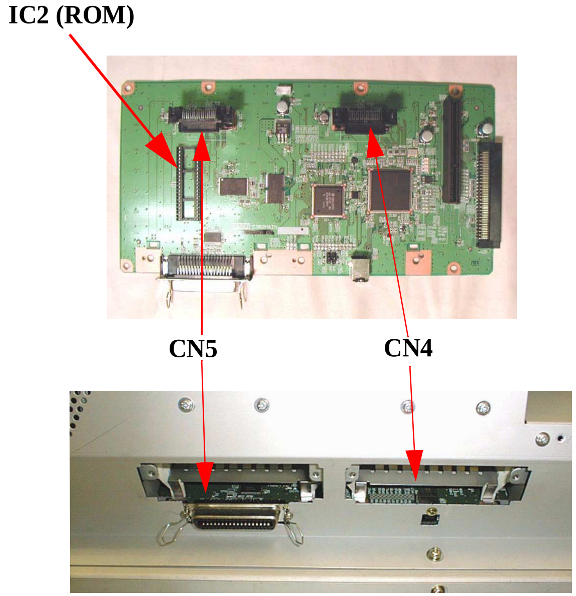

IC2 (ROM)
CN5
CN4

Figure 4-51.

4.2.2.4 CSIC Board Removal.

1. Remove the “R Side Cover” as described in paragraph 4.2.1.3.
2. Remove the cables from the following connectors.

Table 4-3. CSIC Board Connectors

Connector #	Pins	Color	Clamp Location	Connection	Notes
CN1		W / K		I/C Holder Cover Sensor	
CN2	FC			C362DRV CN29	
CN3	FC			Ink Cartridge type (color) Sensor : Black	
CN4	FC			Ink Cartridge type (color) Sensor : Cyan	
CN5	FC			Ink Cartridge type (color) Sensor : Magenta	
CN6	FC			Ink Cartridge type (color) Sensor : Light Cyan	
CN7	FC			Ink Cartridge type (color) Sensor : Light Magenta	
CN8	FC			Ink Cartridge type (color) Sensor : Yellow	
CN9	3	GRAY x 2 W		Ink Pump ASSY Vacuum sensor	R
CN10	3	GRAY x 2 W		Creaning Unit Location detect sensor	Blk
CN11	3	GRAY x 2 W		Ink Pump ASSY Carriage Lock Sensor	W

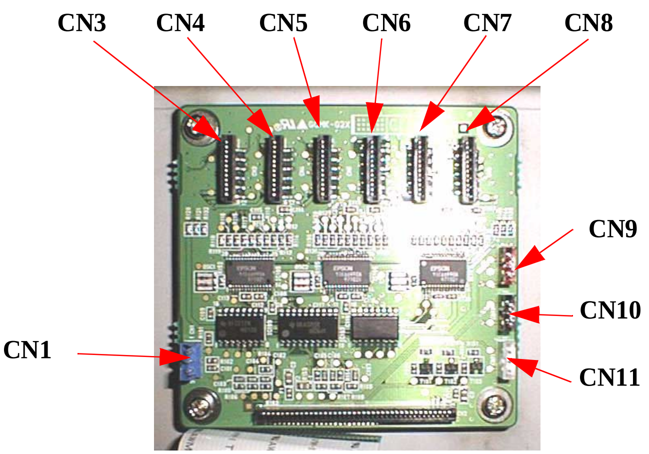

CN3
CN4
CN5
CN6
CN7
CN8
CN9
CN10
CN1
CN11

Figure 4-52.

3. Remove four screws, then remove the CSIC board.

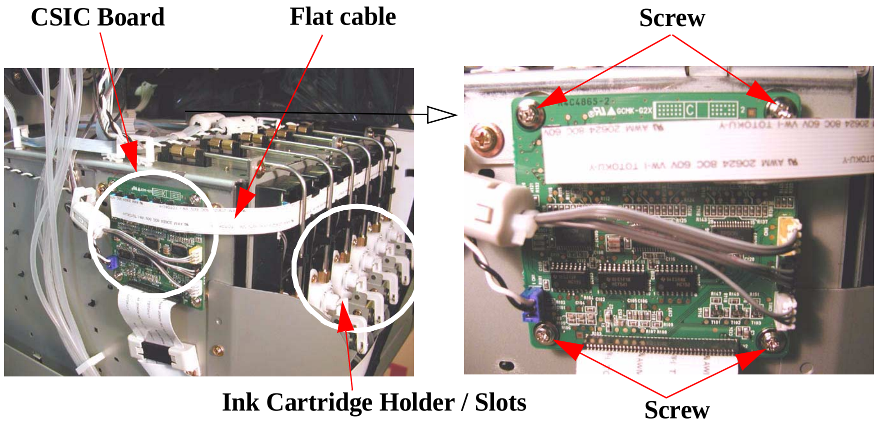

CSIC Board
Flat cable
Screw
Ink Cartridge Holder / Slots
Screw

Figure 4-53.

4.2.2.5 C362DRV Board Removal

1. Remove the Rear Cover as described in paragraph 4.2.1.7.
2. Remove “HJFK / Dummy Board” and “C362MAIN Board (Refer to the paragraph 4.2.2.2 / 4.2.2.3.)
3. Remove the cables from the following connectors.

Table 4-4. C362DRV Board Connectors

Connector #	Pins	Color	Connection
CN4	3	3 (Black / Grey / White)	Front Cover Sensor Assy R
CN5	3	3 (Black / Grey / White)	Front Cover Sensor Assy L
CN6	2	2 (White / Black)	CR Motor
CN7	3	2 (White / Black)	PF Motor
CN8	5	4 (Yellow / White / Red / Black)	PF Encoder
CN11	4	Grey FC	Supply System Motor
CN12	4	Grey FC	Pump Motor
CN13	4	Grey FC	Cap Motor
CN14	4	4 (Yellow / White / Red / Black)	Suction Control Motor
CN15	4	4 (Yellow / White / Red / Black)	PG Motor
CN17	4	4 (Black)	Dot Missing Detector
CN18	7	7 (Black)	Dot Missing Detector
CN19	-	White FPC	Head Assy Board CN9
CN20	-	White FPC	Head Assy Board CN8
CN21	-	White FPC	Head Assy Board CN7
CN22	-	White FPC	Head Assy Board CN12
CN23	-	White FPC	Head Assy Board CN11
CN24	-	White FPC	Head Assy Board CN10
CN25	3	2 (Black)	Ink Ready Plunger
CN26	68	-	Option Card Installation (TBD)
CN29	-	White FPC	Head Assy Board CN1
CN30	3	2 (Red / Black)	P/S Fan
CN31	2	2 (Red / Black)	P/S Self-containing Fan
CN32	2	2 (White / Black)	Suction Fan
CN33	2	2 (White / Black)	Suction Fan
CN34	2	2 (White / Black)	Suction Fan
CN35	3	2 (Red / Black)	Dot Missing Detector
CN36	2	2 (Red / Black)	Heat Sink Fan 1
CN37	2	2 (Red / Black)	Heat Sink Fan 2
CN38	2	2 (Red / Black)	Heat Sink Fan 3
CN40	12	11 (Red2 / Black3 / White1 / Orange1 / Brown2 / Yellow2)	Power Board CN4
CN42	10	10 (Orange2 / White1 / Grey2 / White1 / Yellow2 / Pink2)	Serial Port
CN43	5	3 (Red / Blue / Orange)	CR_HP Sensor
CN44	4	4 (Red / Blue /Black / Orange)	P_Rear Sensor Assy
CN45	5	3 (Red / Blue / Orange)	Paper Ready Sensor
CN46	4	4 (Red / Blue /Black / Orange)	P_Front Sensor Assy
CN47	5	3 (Red / Blue / Orange)	P_Thick Sensor
CN48	5	3 (Red / Blue / Orange)	Suction Location Detect Sensor
CN50	2	2 (Red / Black)	Paper Hold Solenoid
CN52	4	4 (Red / Blue /Black / Orange)	Head_Slide Sensor Assy
CN54	-	White FPC	C362MAIN Board
CN55	-	White FPC	CSIC Board CN2
CN56	3	3 (Red / Orange / Black)	Power Board CN2

For connector locations, refer the illustration below.

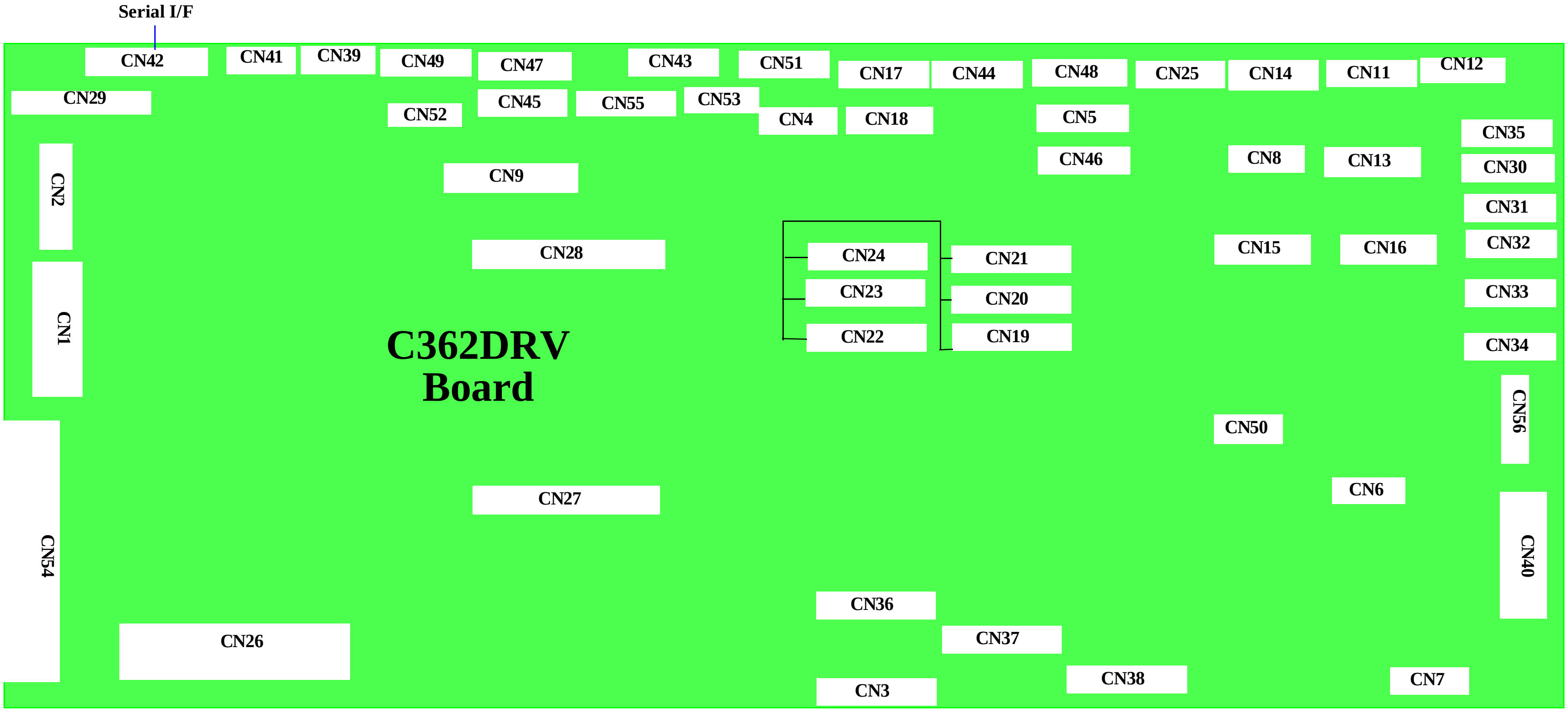

Serial I/F
CN42
CN41
CN39
CN49
CN47
CN43
CN51
CN17
CN44
CN48
CN25
CN14
CN11
CN12
CN29
CN52
CN45
CN55
CN53
CN4
CN18
CN5
CN35
CN2
CN9
CN46
CN8
CN13
CN30
CN31
CN28
CN24
CN21
CN15
CN16
CN32
CN1
CN23
CN20
CN33
C362DRV Board
CN22
CN19
CN34
CN56
CN50
CN6
CN27
CN54
CN40
CN36
CN26
CN37
CN38
CN7
CN3

Figure 4-54.

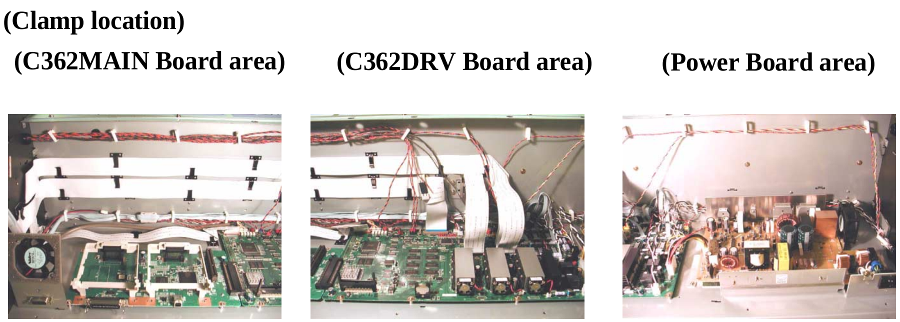


Figure 4-55.

CAUTION **When removing or replacing the FFC cables, always do so carefully. Tearing or folding of the leads can damage the circuit boards. Check the leads and never insert at an angle.**

4. Remove nine screws (CP(W) M3x6) securing the C362DRV board and remove the board.

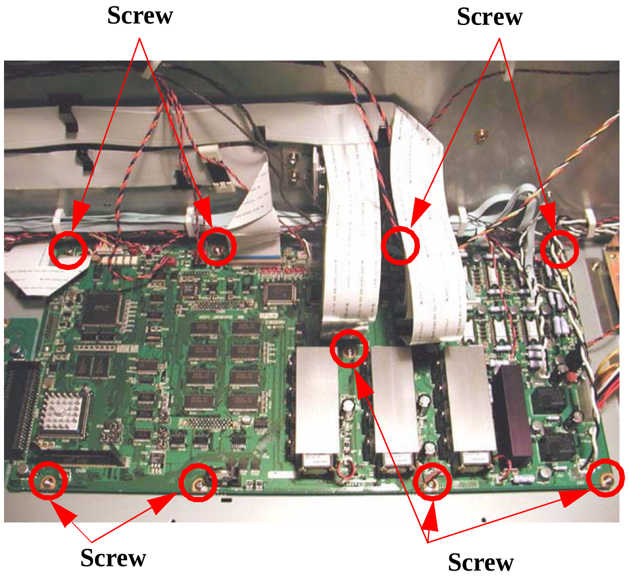


Figure 4-56.

CAUTION **When removing/re-inserting the flat-cable (FFC) from/to a connector, make sure to pull/insert the cable straight. Otherwise, internal contact of the connector may be damaged and this causes a short-circuit to destroy the electrical circuitries.**
Lithium battery (CR2032:3V) is installed on the C362DRV board. Do not short the C362DRV board with metal or conductive materials.

ADJUSTMENT REQUIRED **After replacing the C362DRV board, various adjustments are required. For details about these adjustments, refer to Chapter 5, Adjustment.**

4.2.2.6 P/S Fan Removal

1. Remove the Rear Cover as described in paragraph 4.2.1.7.
2. Remove the connector from CN1 on the C362MAIN board, and unlock from the cable clump.

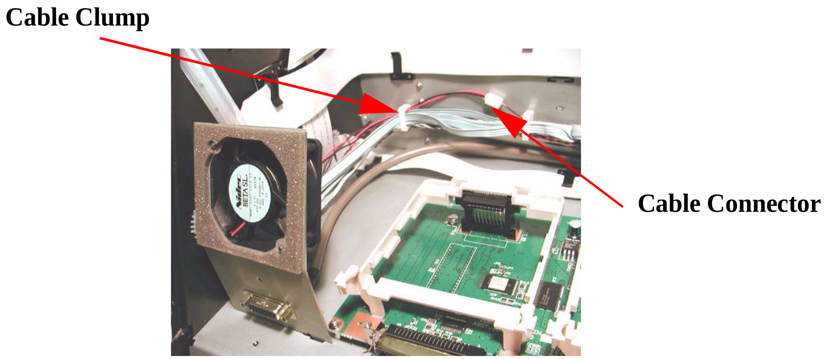

Cable Clump
Cable Connector

Figure 4-57.

3. Remove one screw fixing the earth plate connected to CN42 on the C362MAIN board, and disconnect fan cable connector.

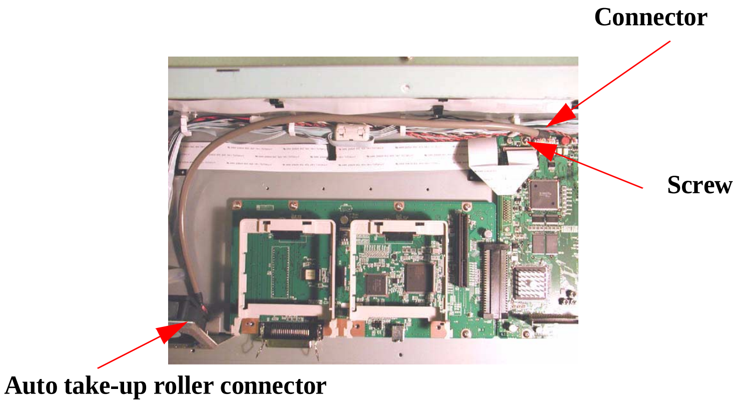

Connector
Screw
Auto take-up roller connector

Figure 4-58.

4. Remove one screw securing the P/S Fan holder, then remove it.

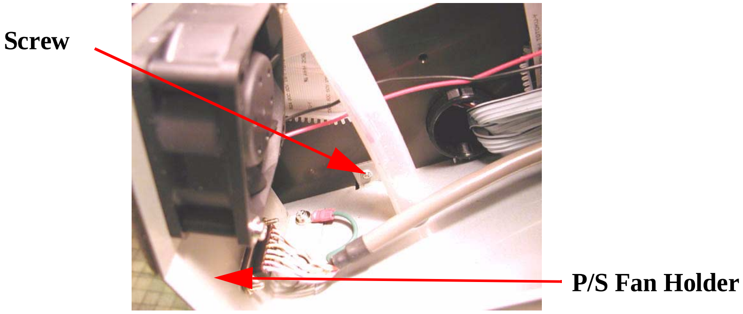

Screw
P/S Fan Holder

Figure 4-59.

5. Remove two screws securing the P/S Fan on the P/S Fan Holder, and remove it.

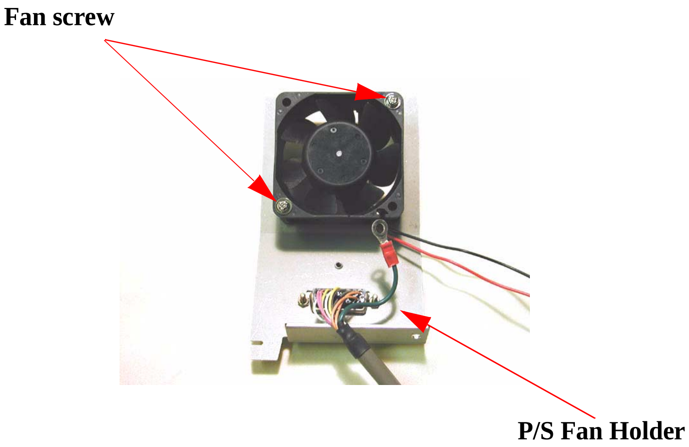

Fan screw
P/S Fan Holder

Figure 4-60.

When replacing the fan, make sure the setting direction.

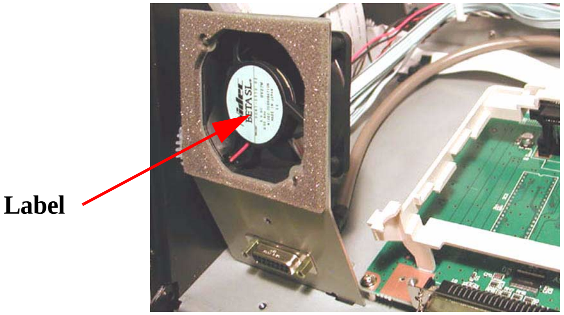


Figure 4-61.

4.2.3 Printer Mechanism Disassembly

This section describes the Printer Mechanism components and the procedure for Disassembly.

- **Do not remove or loosen the screws that secure the CR guide rail, also do not remove the carriage. These parts are adjusted to 1/100th of a mm at the factory.**
- **Do not attempt any kind of service or adjustment to the frame or parts attached directly to the frame. See the Parts List in Chapter 7 for a list of parts that you can service/replace. Other parts can only be assembled and adjusted at the factory.**

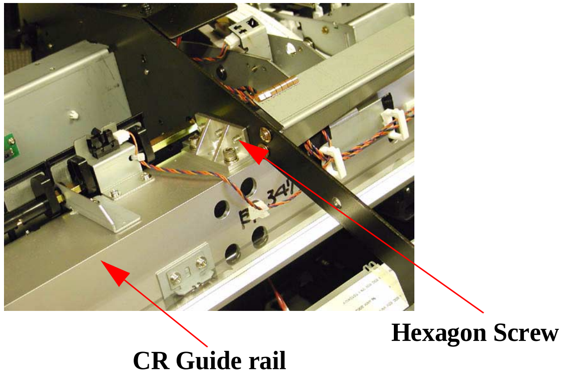


Figure 4-62.

4.2.3.1 Replacing the Waste Ink Unit

To keep the printhead clean and maintain quality, the printer drains waste ink away from the printhead surface and nozzles into the Waste Ink Unit. Once a predetermined amount of waste ink has been drained, the printer displays the "Maintenance Call 0100" message to indicate the pads are 99% full and then displays the "Service Call 00000100" message to indicate the pads are completely full and need to be replaced before printing can continue.

CAUTION

When the waste ink counter indicates the ink pads need to be replaced, the following parts all need to be replaced at the same time.

- **Waste Ink Unit**
- **Pump ASSY**
- **Cap ASSY**
- **Head Cleaner**
- **Flushing Box**

Then reset the following counters:

- **INIT. WASTE INK**
- **INIT. CLEANING**

CHECK POINT

The above mentioned parts are available as a kit.
Description: MAINTENANCE KIT Stylus Pro 10000/10000CF
Parts code: TBD

1. Remove five screws (CP(W):M4x8)securing waste ink cover.

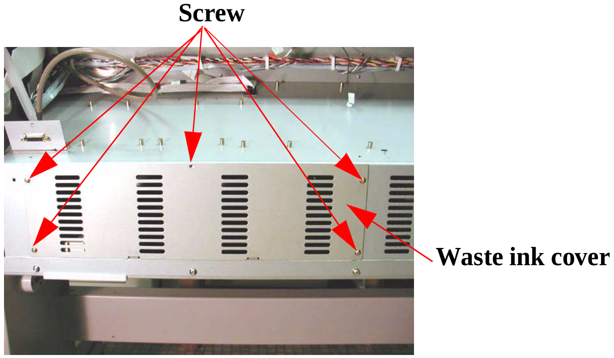


Figure 4-63.

2. Remove handle by pressing latches.

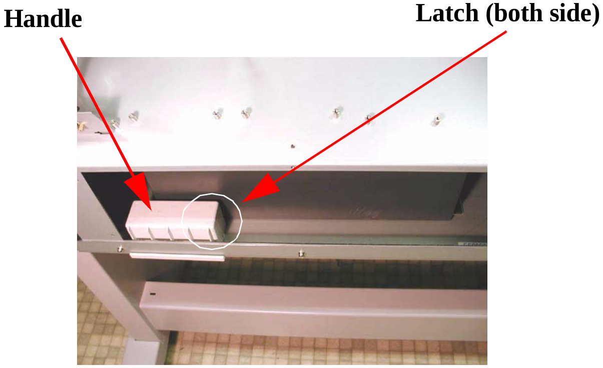


Figure 4-64.

3. Remove the two waste ink tubes from the tubes clamps. After the removal, put the tubes on the waste ink pad preventing from ink leakage.

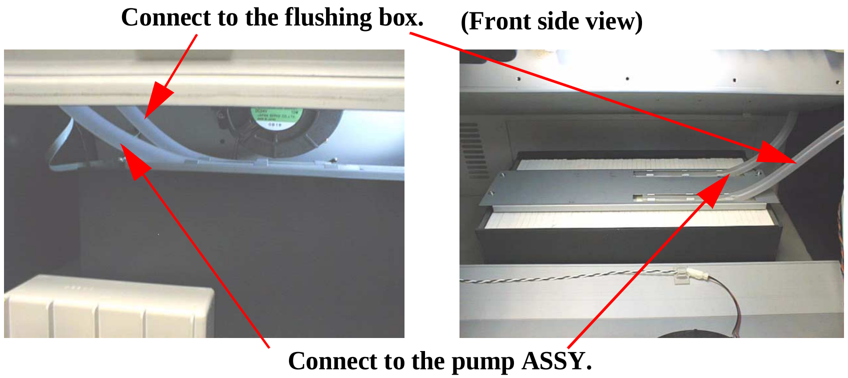

Connect to the flushing box.
(Front side view)
Connect to the pump ASSY.

Figure 4-65.

4. At the bottom side, pull (unlock) the two tabs of ink box and slide the ink box toward you.

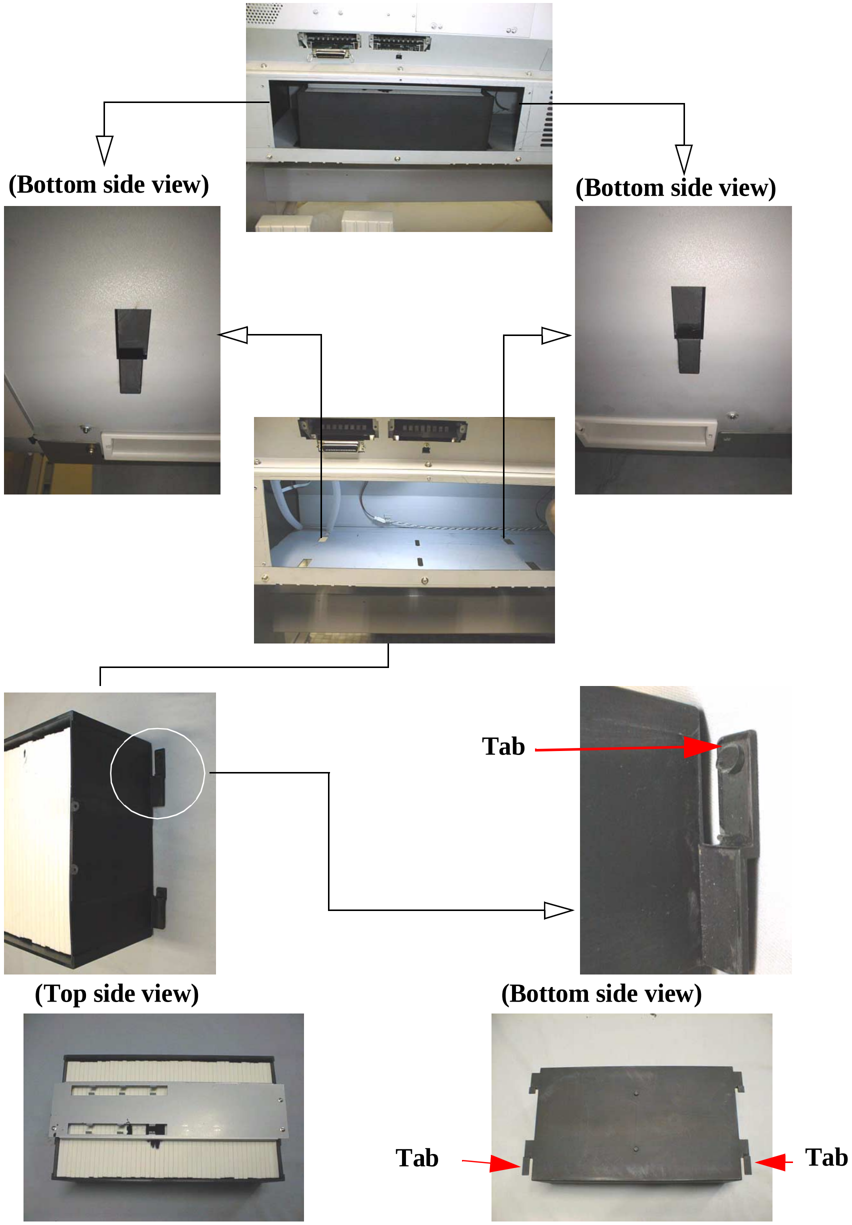

(Bottom side view)
(Bottom side view)
Tab
(Top side view)
(Bottom side view)
Tab
Tab

Figure 4-66.

5. Remove the Waste Ink Box by sliding it forward so the hooks on both sides release and then pull up.

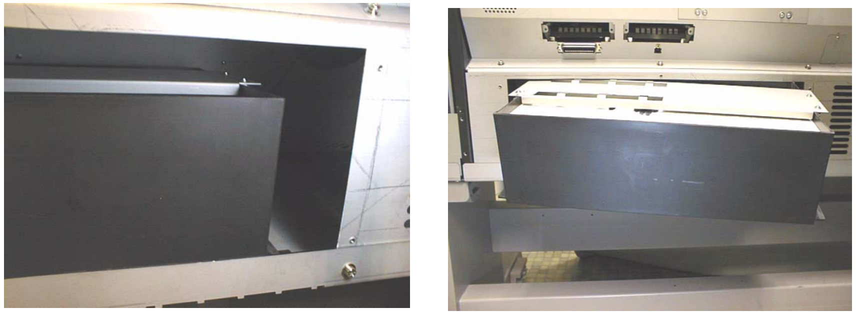


Figure 4-67. Waste Ink Box

6. Remove three screws on the ink tube clamp and remove it.

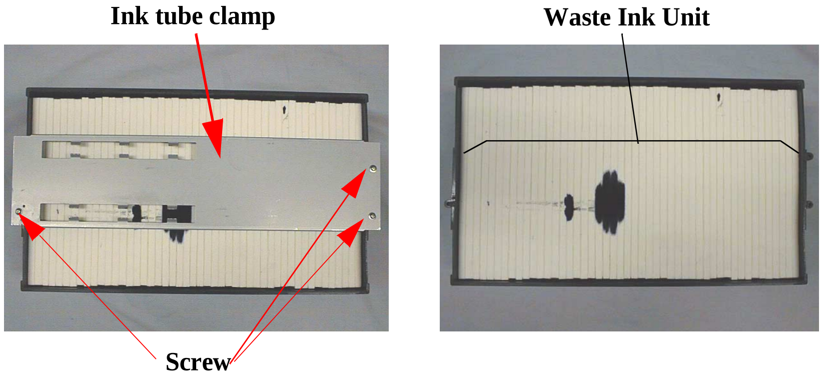


Figure 4-68. Disassembly of the Waste Ink Box

7. Remove the old Waste Ink Unit and dispose of them properly.

CHECK POINT

When replacing the Waste Ink Unit, prepare a vinyl bag beforehand for disposal of the Pads.

8. Insert new Waste Ink Unit, and re-install the Waste Ink Box in the printer.

ADJUSTMENT REQUIRED

When replacing the Waste Ink Unit, the following adjustment procedures are required. See "Maintenance Mode 2" on page 50.

- **INIT. WASTE INK**
- **INIT. CLEANING**

REASSEMBLY

To reassemble the waste ink box and related parts, follow the above steps in reverse order and make sure you keep the following in mind:

- **The waste ink tubes should be inserted into the ink tube clamp.**
- **Make sure the tubes are not twisted or pinched.**

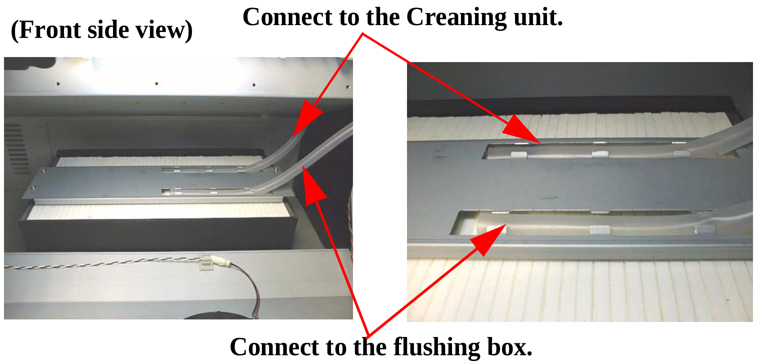


Figure 4-69.

4.2.3.2 Removing the Suction Fans

1. Move the head carrige to the home position.
2. Remove three screws (M3x8) on the clamp securing the head cables and tubes.
3. Unlock the tube clamp from guide rail.
4. Remove four screws (M3x8) on the guide rail.
5. Remove the guide rail.

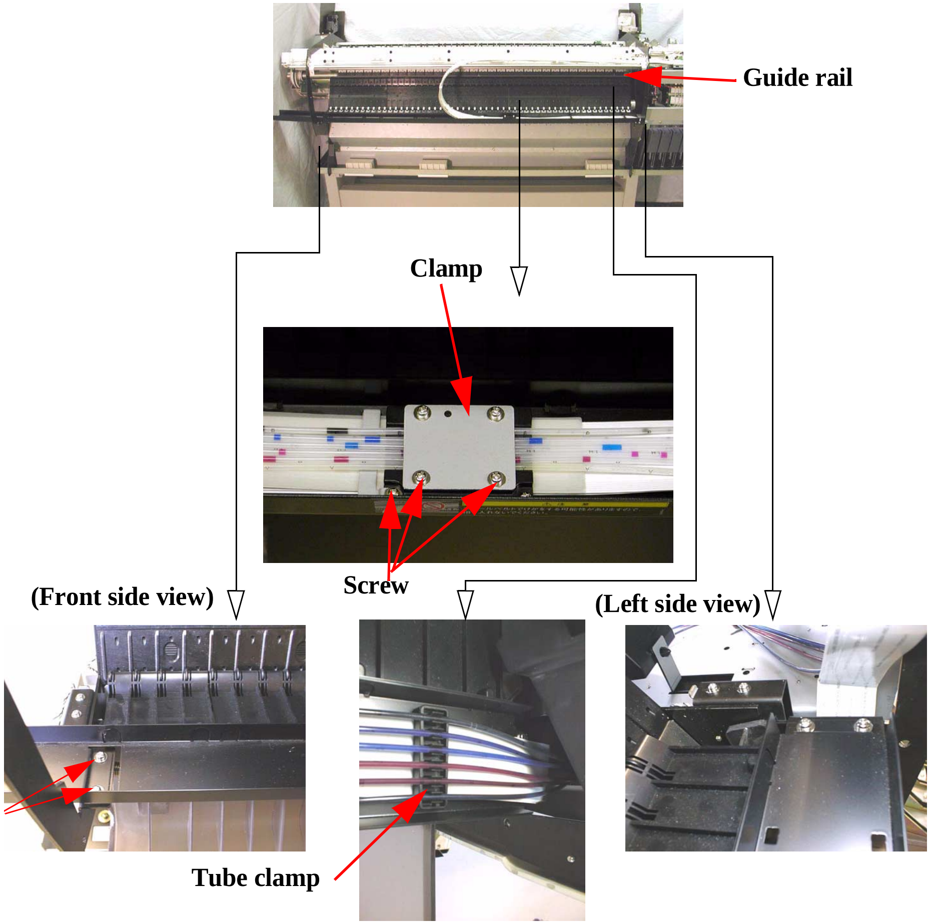

Guide rail
Clamp
(Front side view)
Screw
(Left side view)
Tube clamp

Figure 4-70.

6. Remove each two screws fixing the Roller unit (5 pieces), and remove the Roller unit.

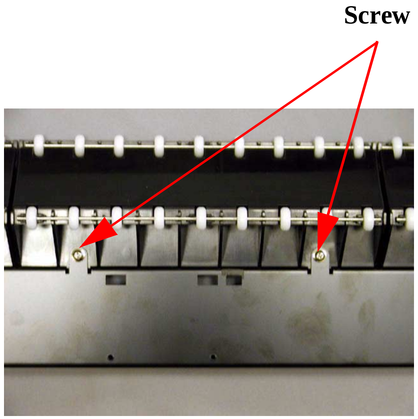


Figure 4-71.

7. Remove ten screws (3x8), then push up the five Sub Platens and remove it.

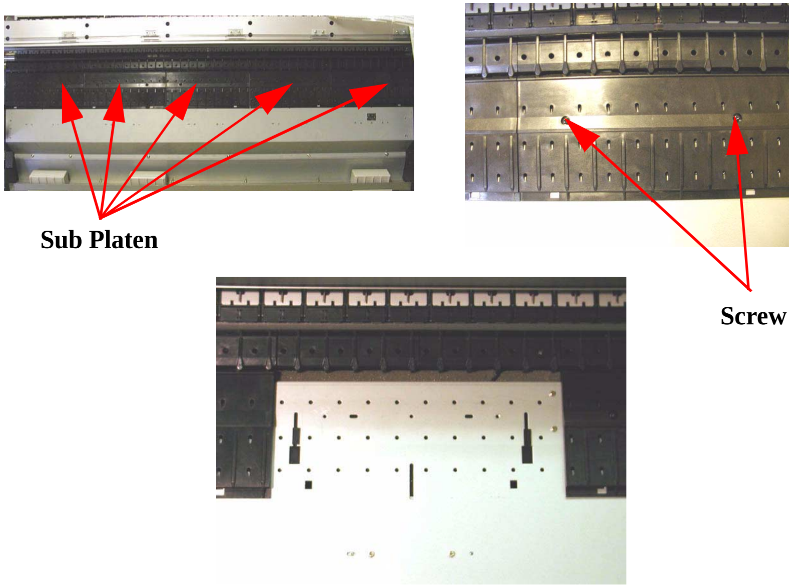

Sub Platen
Screw

Figure 4-72.

8. Loose the Fan cable and shutter fan cable fixing nuts and make cables free.

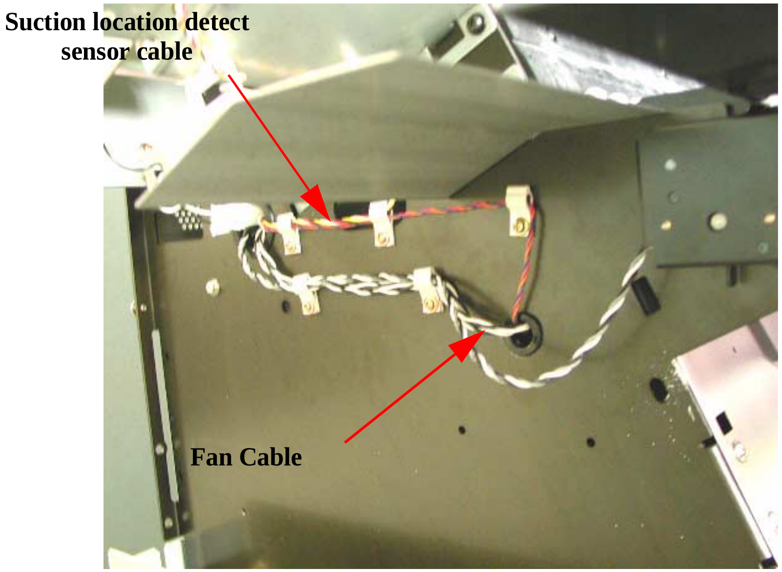

Suction location detect sensor cable
Fan Cable

Figure 4-73.

9. Remove twelve screws (M4x8) securing the Fan Duct
   * Do not mind six screw of the upper sides are dropped inside the fan duct without taking out.

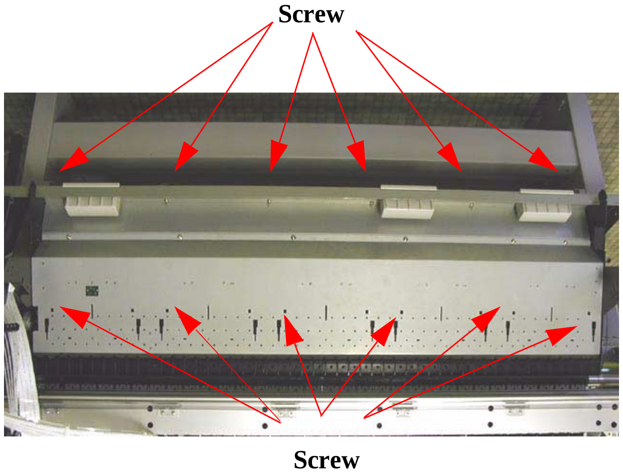


Figure 4-74.

CHECK POINT **Screws are covered under sponge of fun duct.**

CAUTION **Pay attention so as not to fail the sponge seal with the driver. (When it fails the air leakage occurs and the adsorption power of the form becomes low.) Remove the last screw while supporting with the hand, because the fan duct falls when remove all the screw.**

Do the cleaning, because dust etc. is adhering inside, when remove the fan duct.

10. Open the fan duct as shown below.

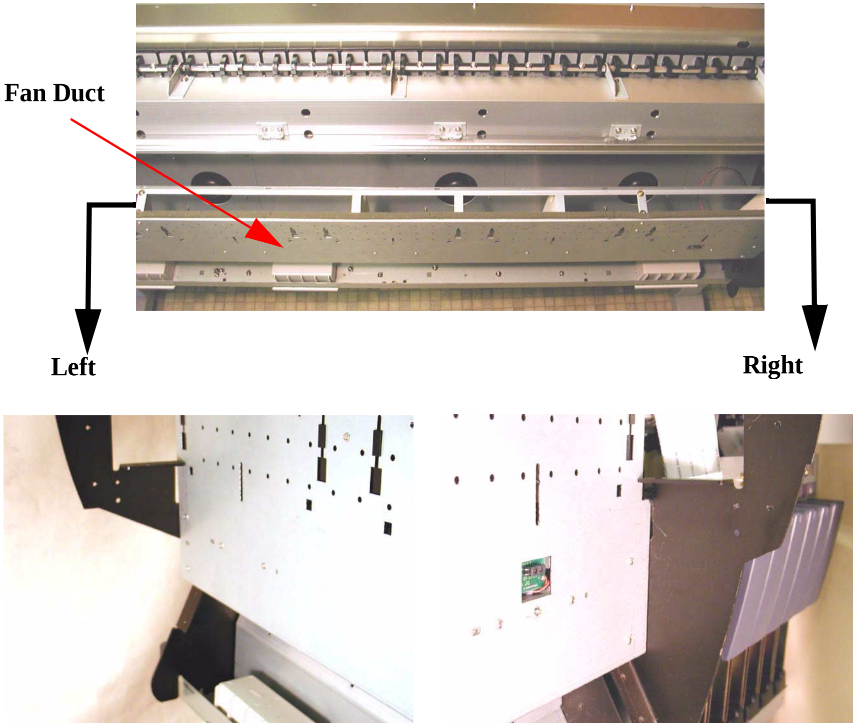


Figure 4-75.

11. Open as inside of the fan duct becomes upward like the rough sketch, after it raises it a little upward, while paying attention so as not to scar each cable of the right and left.

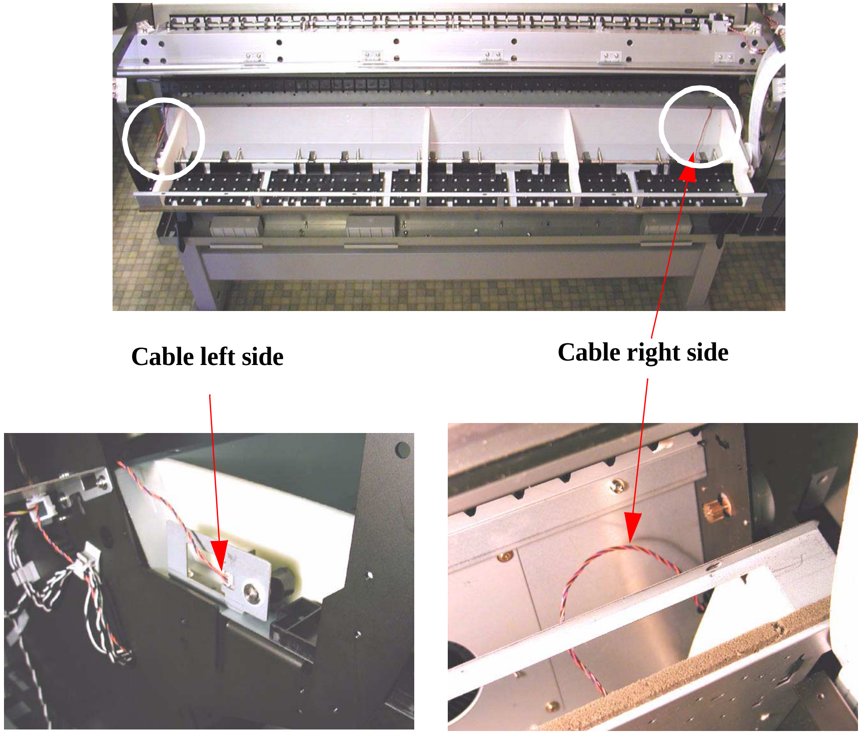

Cable left side
Cable right side

Figure 4-76.

12. Disconnect left side suction location detect sensor cable connector.

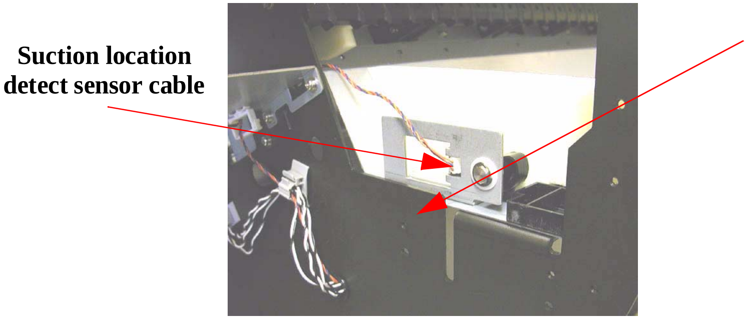

Suction location detect sensor cable

Figure 4-77.

13. Remove one screw (M4x8) fixing right P_FRONT sensor, and remove P_FRONT sensor with bracket.

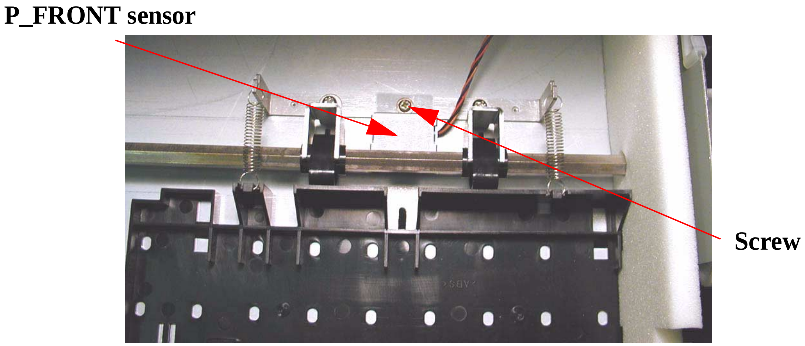

P_FRONT sensor
Screw

Figure 4-78.

14. Remove the Fan Duct.

15. Remove four screws (M4x8) fixing each Suction Fan cover.

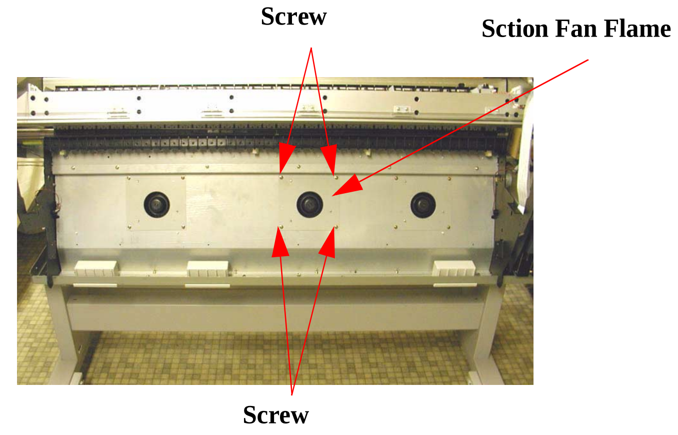

Screw
Sction Fan Flame
Screw

Figure 4-79.

16. Turning over and extract the Suction Fan the cable connector of the reverse side,then remove it from the clamp.

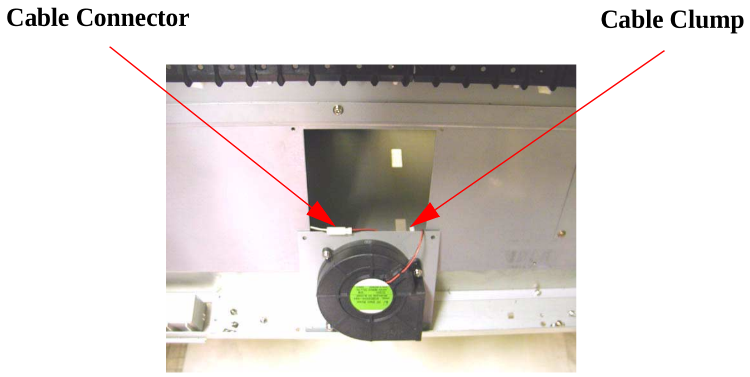

Cable Connector
Cable Clump

Figure 4-80.

17. Remove three screws (M4x8) , then remove the Suction Fan.

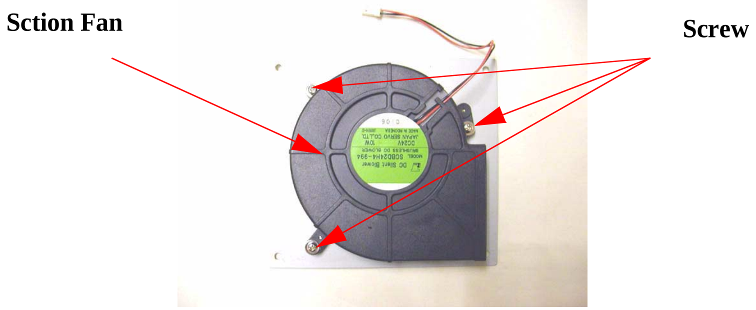

Sction Fan
Screw

Figure 4-81.

ADJUSTMENT REQUIRED

Carry out the justification with the L style gauge, when assemble the sub platen. (Refer to Chapter 5 "the adjustment")

4.2.3.3 Replacing the Printheads

CHECK POINT

- **Before each step in this operation, take a good look at the relative parts and where they are or how they are housed. This is not an easy procedure, and reassembly is even harder if you do not pay strict attention to how the parts fit together.**
- **Read this entire section and become familiar with the associated parts before starting.**

ADJUSTMENT REQUIRED

When replacing the printheads, the following adjustment procedures are required.

- **Self-diagnostic function/adjustment**
- **Head unit counter reset in Maintenance mode 2. (Refer to “Maintenance Mode 2 54“Maintenance Mode 2” in .)**

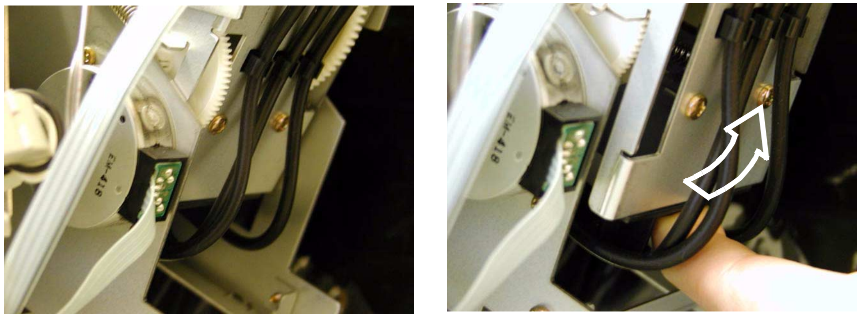
1. Drain the ink as described in the Clean Head section of “Adjustment Menu”.(Refer to “Print head cleaning 250.)

CAUTION

- **Do not carry out the counter clear of the menu that is displayed at the end of the head washing.**
- **Before printhead replacement, the ink discharge must be performed only and not performed until Counter clear.**

2. Remove the R Side Cover as described in “R Side Cover Removal 124.

3. Lift up the ink pump ASSY to release the carriage lock, and move the carriage away from the home position.



(Lock position) **(Unlock position)**

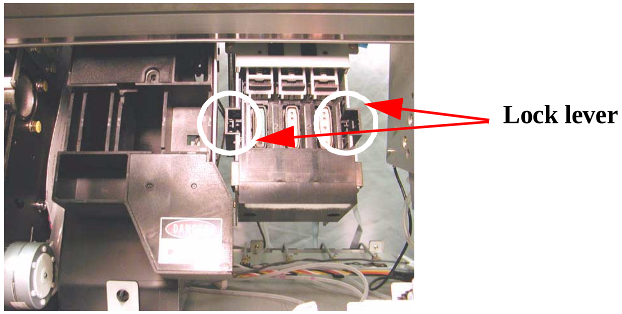


Figure 4-82.

4. Remove the two screws (CP(W):M3x6) securing the carriage cover and remove the carriage cover.

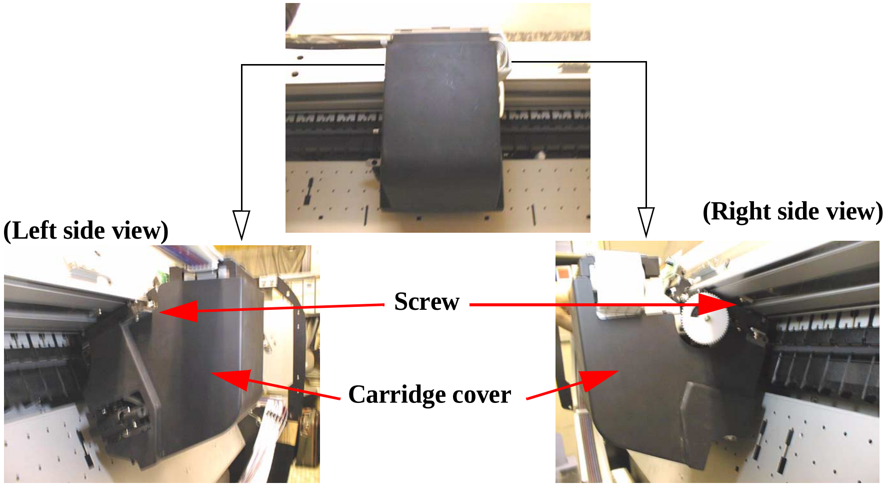


Figure 4-83.

5. Sticking the nut that is jointed to the pipe on the tube pipe fixed plate with the gum tape etc. to avoids missing the pipe.

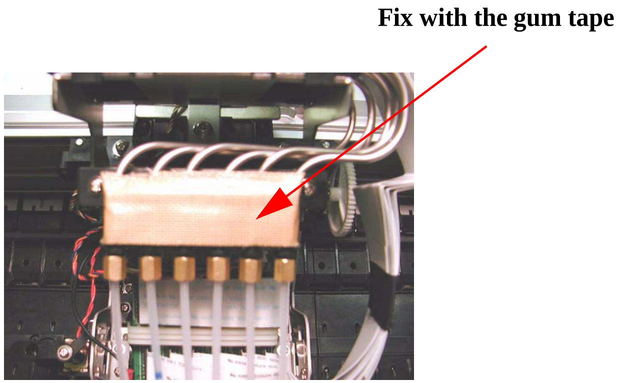


Figure 4-84.

6. Loosening the nut on the side of the tube, while holding down the nut part, such that the nut on the side of the metal pipe that fixed it with the tape does not get loose we remove the pipe.

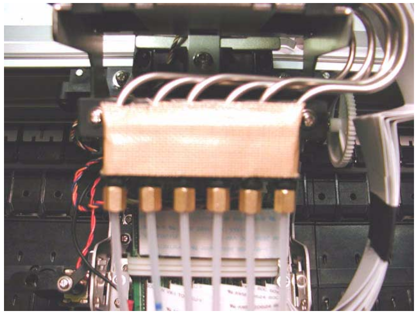


Figure 4-85.

CAUTION

When loosen the nut, do the measure so as not to get dirty with the rag etc. because there is the possibility that the remaining ink leaks from metal pipe side and tube side.

CAUTION !

Do not lose the O ring between the tube and nut.
Do not touch with the empty hand and also, do not soil. (It becomes the cause of ink leakage.)

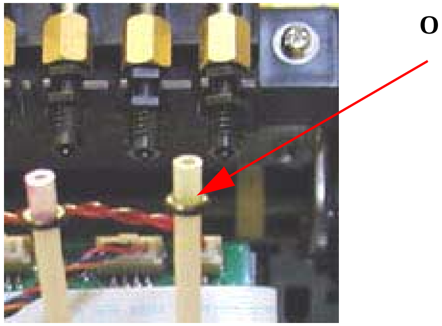


Figure 4-86.

CAUTION !

When assembly, there is ink leakage occurs by the tightening defectiveness of the nut, if it is not the condition where the tube was plugged vertically to the nut joint department.
Tightening of the nut with the torque wrench of the exclusive use (#E589: torque 1kg).
Confirm that the O-ring (packing) is not transforming.

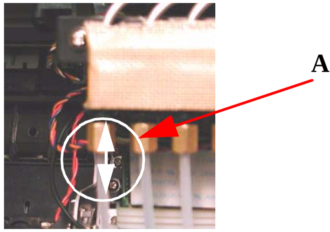


Figure 4-87.

CAUTION !

Do not loosen the nut on the side of the metal pipe.

7. Disconnect all head cables (6 pieces) from the Head board.

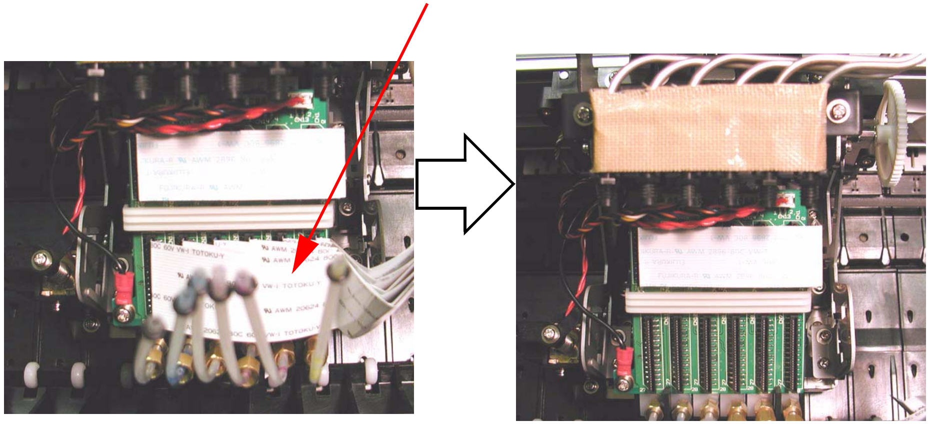


Figure 4-88.

CAUTION !

Plug it firmly until the head cable is related about the back on the occasion of the attachment. The contact lack becomes the cause that dot missing and the obstacle of the C362DRV board.

8. Remove two screws (CP M3x6)fixing the Damper holder.

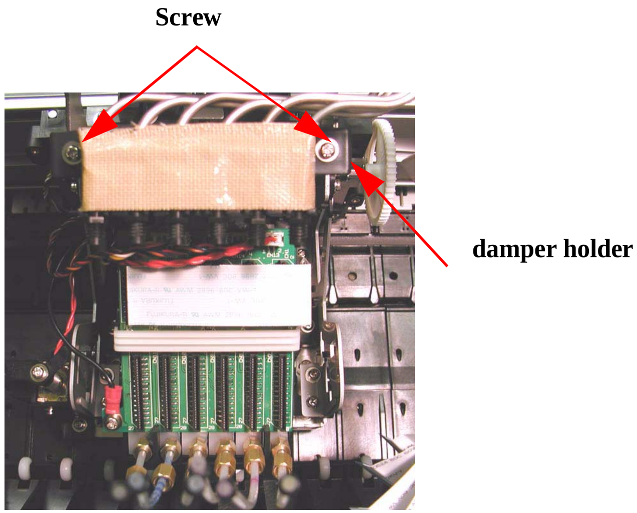

Screw
damper holder

Figure 4-89.

9. Remove two screws (CP M4x6)fixing the Damper holder.

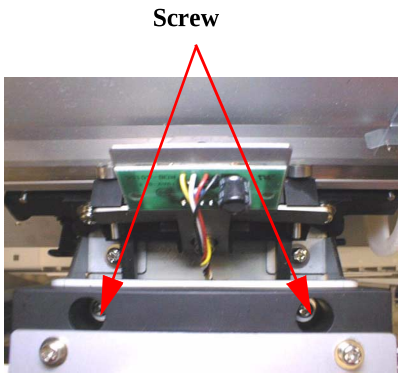


Figure 4-90.

10. Remove the damper holder with the cable and tube.

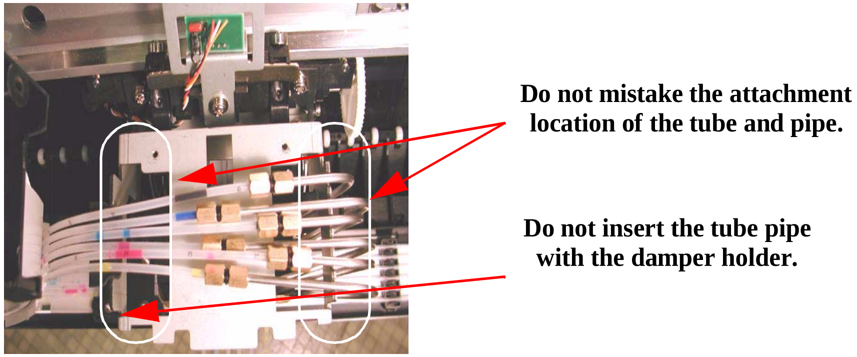

Do not mistake the attachment location of the tube and pipe.
Do not insert the tube pipe with the damper holder.

Figure 4-91.

CAUTION

When assembly, do not mistake the attachment location of the tube and pipe.
Do not insert the tube pipe with the damper holder.

11. Remove screw fixing the earth plate. Do not drop the nut of the reverse side.

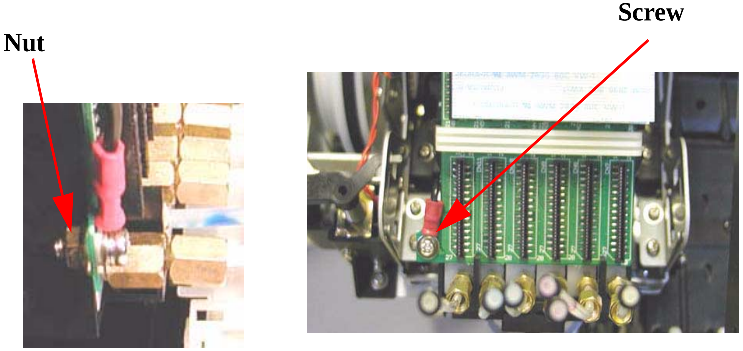


Figure 4-92.

12. Disconnect three connector cable, while push down the upper side of the head board.

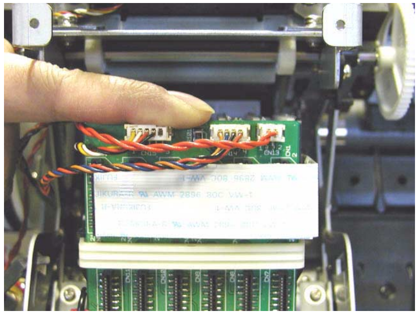


Figure 4-93.

CAUTION

There is the danger that damages the substrate and also cause the contact defectiveness of the FFC cable, if it does not draw out the connector cable after the upper side of the head substrate is held down.

13. Remove the screw of the upper side while holding down the compression spring that is attached to the screw of the lower part with the finger such that the spring of the hinge does not miss and not jump out, then remove the hinge, compression spring and holder. Also remove the hinge on the right side.

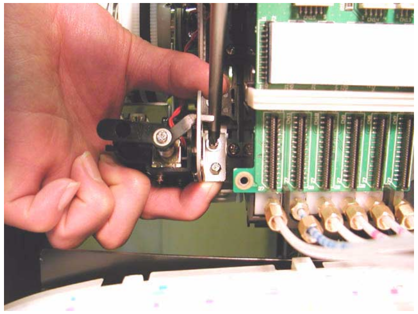


Figure 4-94.

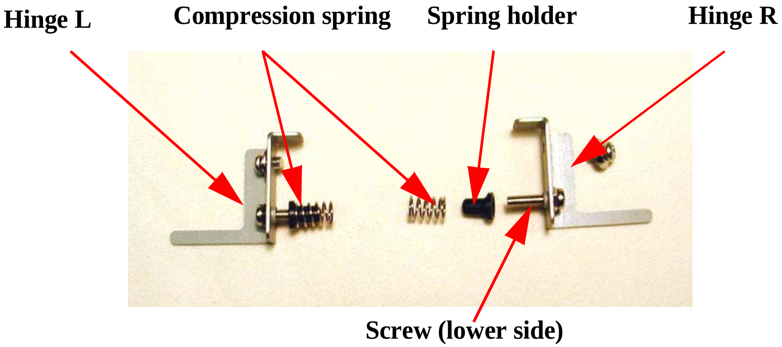


Figure 4-95.

CAUTION

Do not forget that the compression spring and spring holder (the black plastics) are attached with the lower part screw.

14. Remove two screws fixing the Head ASSY to the Head guide of the right and left.

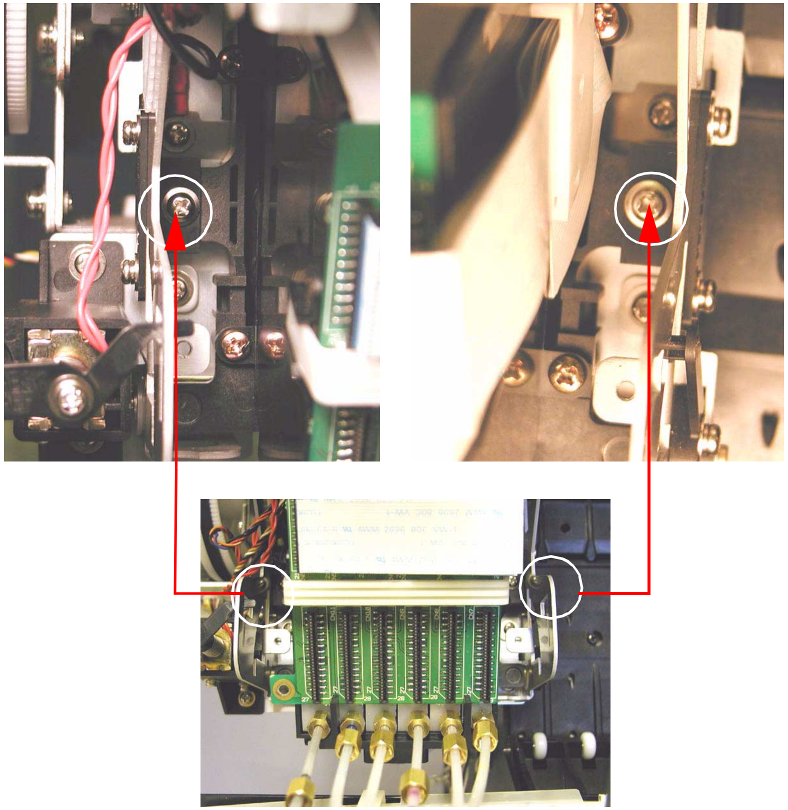


Figure 4-96.

15. Remove each two screws fixing the Head guide of the right and left.

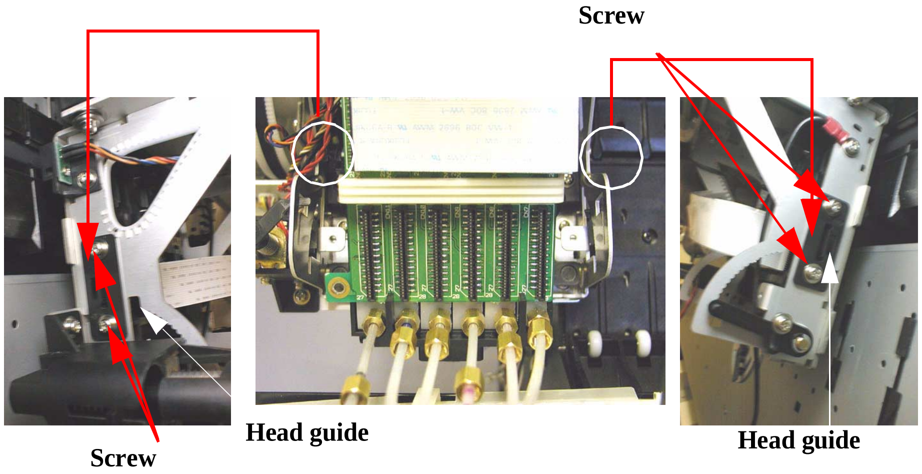


Figure 4-97.

16. Remove compression spring 9.9 that a few of the lower part of head ASSY raises and be attached between the head base and head ASSY. Do not transforme the spring.

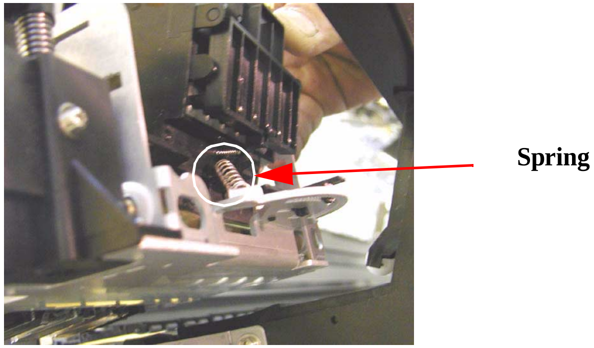


Figure 4-98.

17. Raising a few of the lower part of Head ASSY, then draws out it to the front lower side.

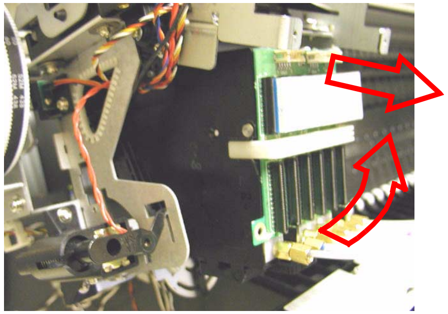


Figure 4-99.

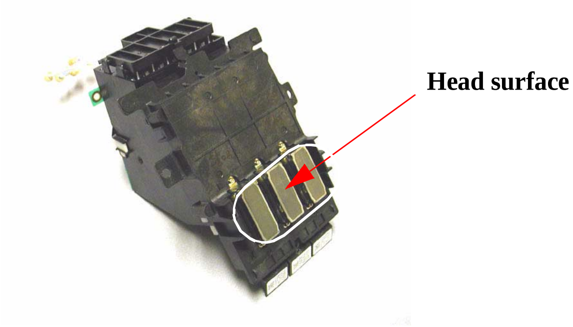
CAUTION

Exchange the spring, in the case that the compression spring is caused transformed.

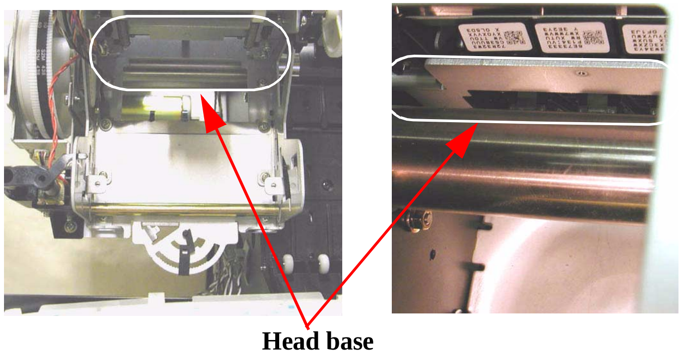
CAUTION

When disassemble / assemble the Head ASSY, pay attention in the following point.

- **Do not touch and soil the surface of the head.**



- **When assemble the head, the carriage is migrated to the left side, while confirming the part that showed in the next figure from the reverse side, fixed so as not to contact the surface of the head in the head base.**



- **When assemble the tube, confirm that the nut on the side of the metal pipe is tightened firmly.**

4.2.3.4 Removing the Cutter and Cutter unit

1. Remove the two screws (CP(W):M3x6) securing the carriage cover and remove the carriage cover.

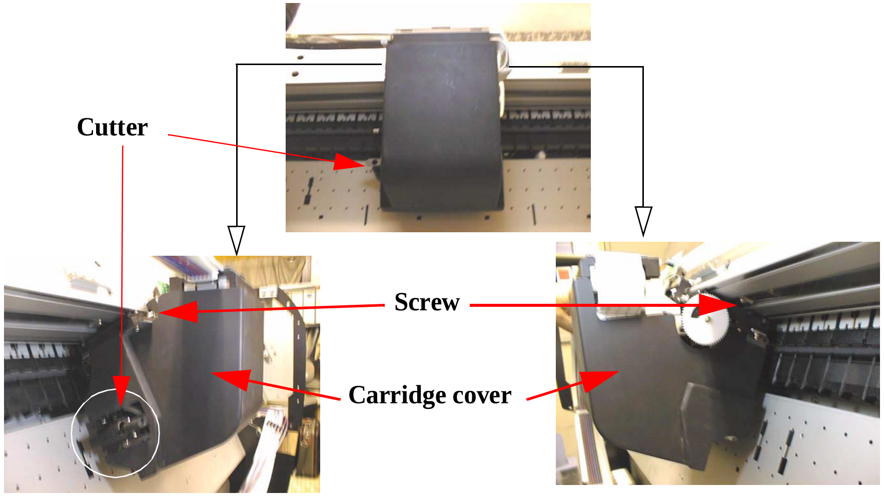


Figure 4-100.

NOTE:

- **When remove the cutter blade, take the following steps 2 to 3.**
- **When remove the cutter unit, take the following steps 4.**

2. Push down and hold the cutter lever then pull up the solenoid and rotate it to the arrow direction.

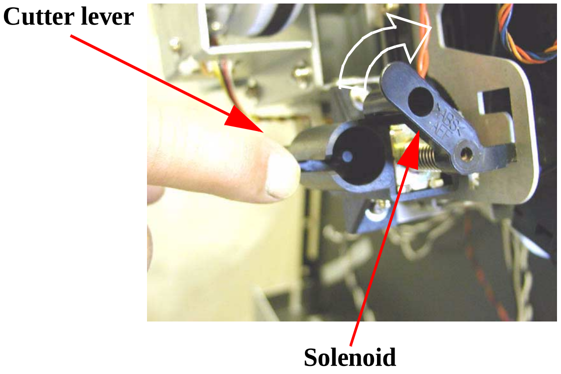


Figure 4-101.

3. Pulling up the cutter from cutter unit.

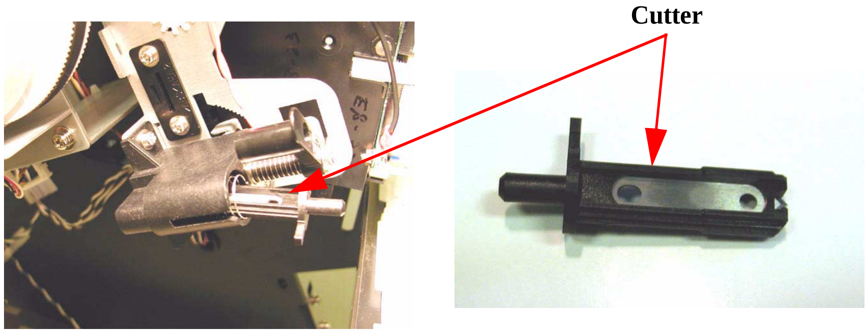


Figure 4-102.

ADJUSTMENT REQUIRED

Run the automatic cutting operation, after cutter unit attaches. The cutter is released to the home position and cut it the form accurately.

4. Disconnect the connector cable, and remove two screws securing cutter unit, then romove the Cutter unit.

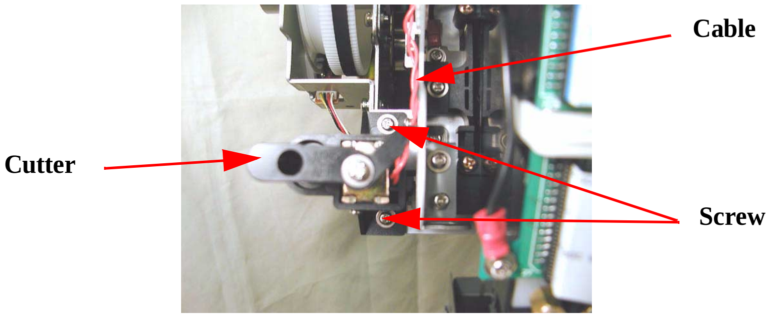


Figure 4-103.

CAUTION

When assembly, adjacent the cutter edge in the section department of a sub platen like the following figure. (Do not part from the section too much / not run on the convex part.)

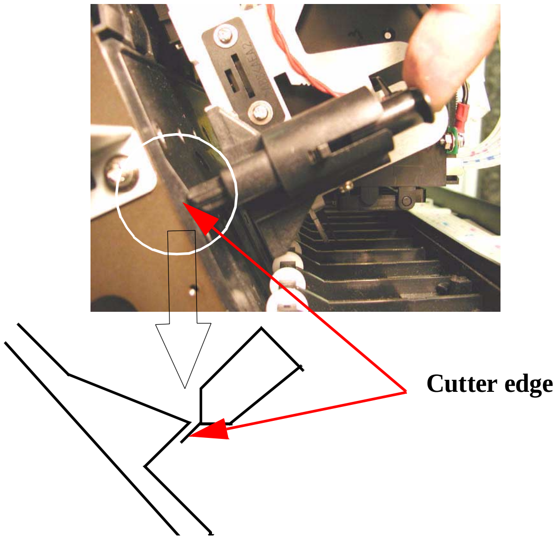


Figure 4-104.

ADJUSTMENT REQUIRED

When attach the cutter unit, perform the cutter position adjustment. (Refer to “Cutter position adjustment 198.)

4.2.3.5 Removing the CR Encoder Sensor

1. Disconnect the CR Encoder cable connector from Head board.
2. Remove two screw (CPP M3x8) securing the CR Encoder Sensor, then remove the CR Encode Sensor.

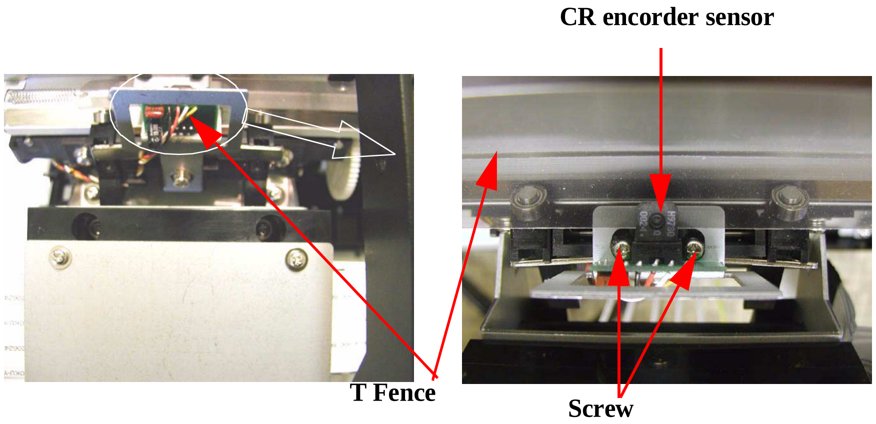


Figure 4-105.

CAUTION

When Disassembly and reassembly, do not bend or injure the CR encorder.

4.2.3.6 Removing the P_Edge Sensor

1. Disconnect the P_Edge Sensor cable connector from Head board.
2. Remove one screw (CBP M3x6) securing the P_Edge sensor and remove the sensor.

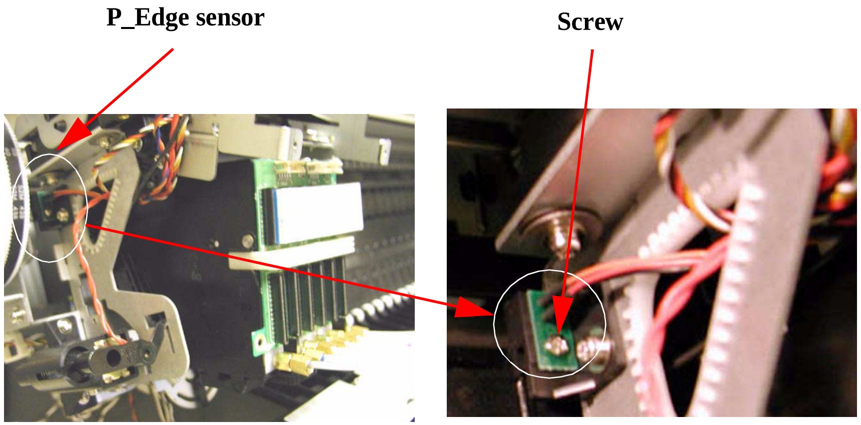


Figure 4-106. P_Edge Sensor Removal

CAUTION

- **When assembly, combine the boss location of the hole of the head base and P_EDGE sensor.**
- **When assembly, fix P_EDGE sensor pushing toward platen side.**

4.2.3.7 Removing the Ink Cartridge Holder & Slots

The Ink Cartridge Holder is made up of six individual slots, one for each color of ink. The following instructions describe how to access and remove one of those slots.

CAUTION

- **Before removing and ink cartridge slot, drain the ink as described in the Clean Head section of “Adjustment Menu”.**
- **To manually perform an initial ink charge, see “Cleaning Menu”.**

1. Drain the ink as described in the Clean Head section of “Adjustment Menu”.
2. Remove the ink cartridge.
3. Remove the L Side Cover as described in “L Side Cover Removal 124.
4. Remove the I/C Holder Cover as described in “I/C Holder Cover Removal 125.
5. Remove the six flat cables from the CSIC board (refer to “CSIC Board Removal. 137.) , and then remove the cables from their harness clamps on the ink cartridge holder sides.

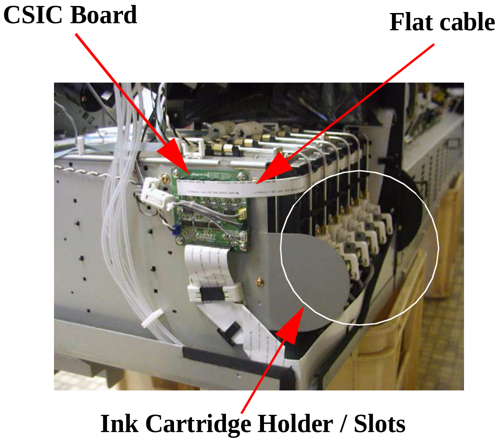


Figure 4-107.

6. Disconnect the air tubes.

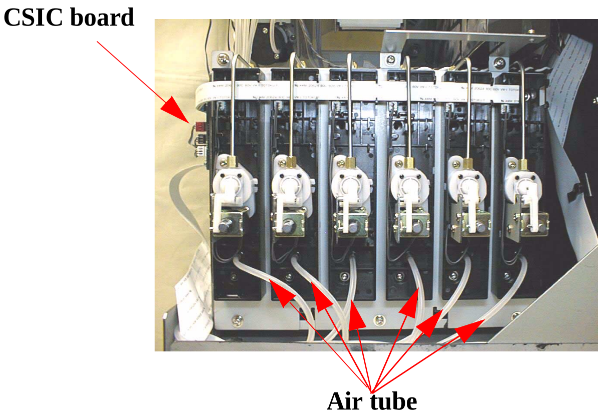


Figure 4-108.

7. Put the waste ink paper around the nut. remove the hexagon nuts and remove the nut ink pipes.

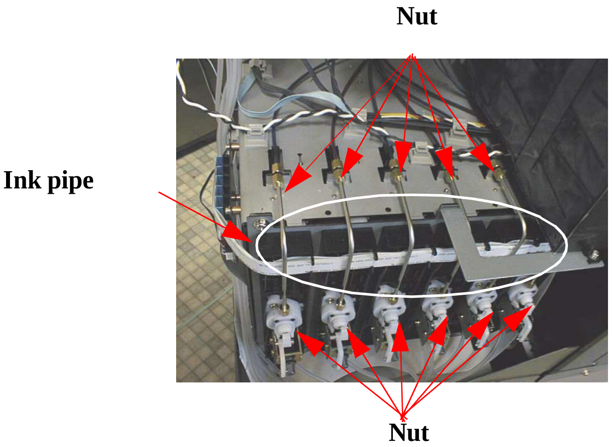


Figure 4-109.

CAUTION

Some of ink will remain in the tube. Proceeding to the nut removal, put the waste paper or similar to the nut for leakage ink absorption.

8. Remove two screws (M3x8) securing ink cartridge holder.

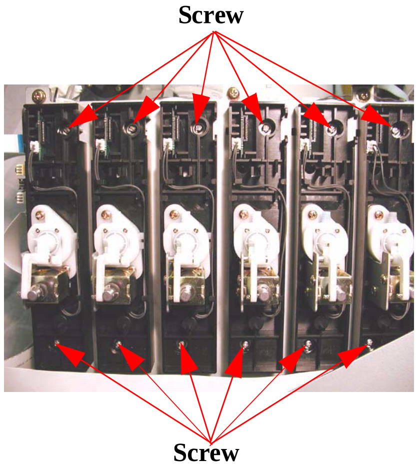


Figure 4-110.

9. Remove the ink cartridge holder to the rear side.

CAUTION

Some of ink will remain in the tube, proceeding to the nut removal, put the waste paper or similar to the nut for leakage ink absorption.
Do not lose the O-ring between the tube and nut.

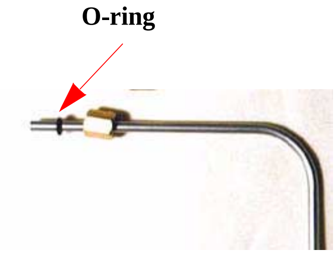


Figure 4-111.

4.2.3.8 Removing the CR Motor / Pulley ASSY

1. Remove the R Side Cover as described in “R Side Cover Removal 124.
2. Remove the L Side Cover as described in “L Side Cover Removal 124.
3. Remove the cable connector of the CR Motor (Lock type).

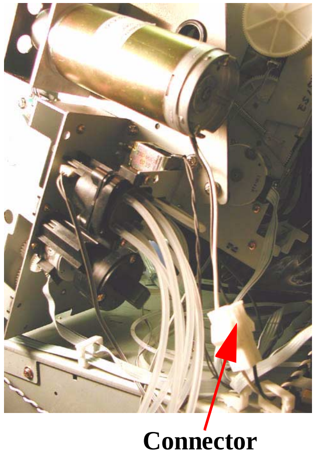


Figure 4-112.

CHECK POINT

Before loosening the CR timing belt tension, confirm and write down the current tension. See “CR Timing Belt Tension Adjustment” for information on confirming the tension.

4. Loosen the CR Tension shaft on the right side of the printer to release the tension on the CR Steel belt. (Loose two screws with same amount.)

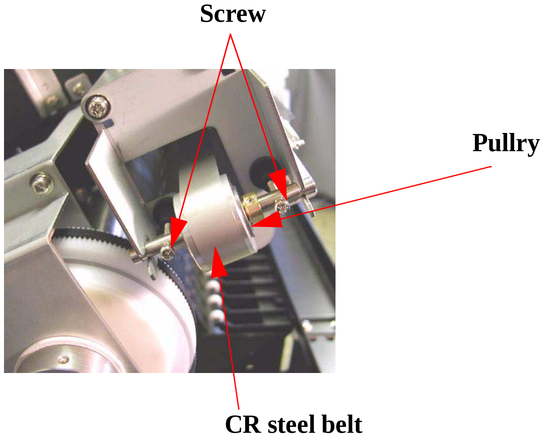


Figure 4-113.

5. Loosen the set screw on the shaft clamp.

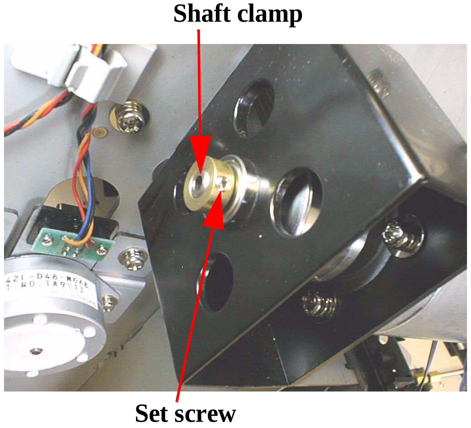


Figure 4-114.

6. Remove the four screws (CP(W) M4x10) securing the CR motor and remove the CR motor with roller.

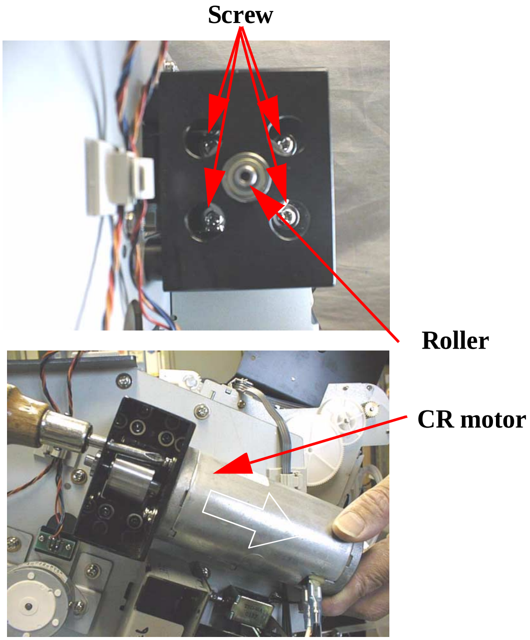


Figure 4-115. CR Motor Removal

ADJUSTMENT REQUIRED

When removing the CR Motor, the following adjustment procedures are required.

- **"CR Timing Belt Tension Adjustment"**

CAUTION

Pay attention so as not to scar the steel belt.

4.2.3.9 Removing the PF Motor ASSY

1. Remove the L Side Cover as described in "L Side Cover Removal 124.
2. Remove the Rear Cover as described in "Rear Cover Removal 126.
3. Disconnect the PF Motor ASSY cable connector.

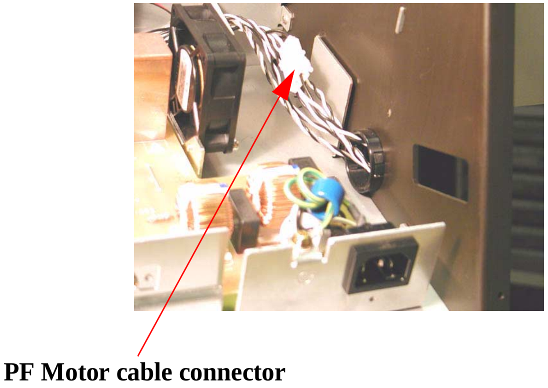


Figure 4-116.

4. Loosen the four (CP(W) M4x10) screws securing the PF motor bracket.

5. Fully slide the PF motor backed to the PF Polly side as shown with arrow direction.

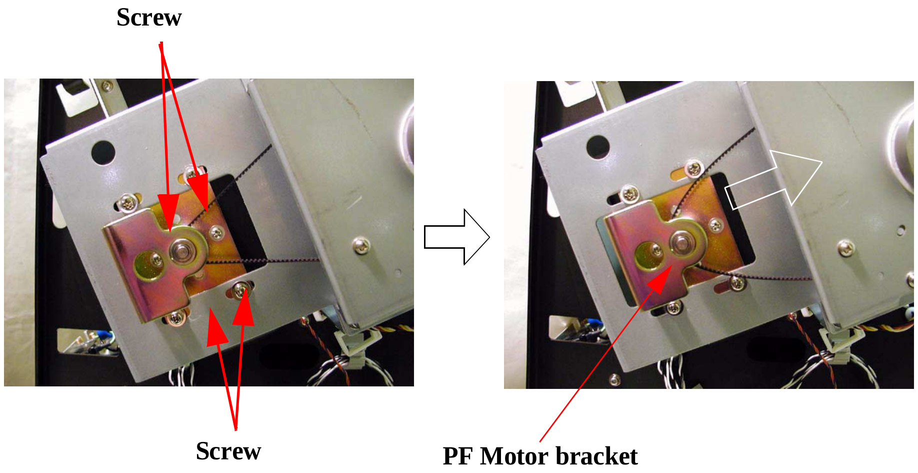

Screw
Screw
PF Motor bracket

Figure 4-117.

6. Remove the two (CP(W) M3x8) screws securing the PF Motor ASSY to the PF motor bracket, and then remove the PF motor bearing, from the bracket.

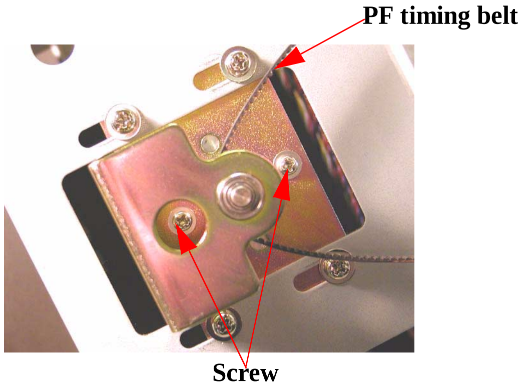

PF timing belt
Screw

Figure 4-118.

CAUTION

When assembling the PF Motor ASSY, move the PF timing belt manually and check that the PF timing belt revolves around the center of the reduction pulley. When removing / installing, do not bend or injure the PF scale.

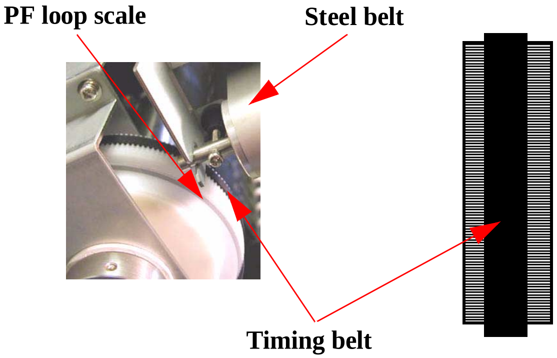

PF loop scale
Steel belt
Timing belt

Figure 4-119.

ADJUSTMENT REQUIRED

If you remove the PF motor, make the necessary adjustments listed in “PF Timing Belt Tension Adjustment”

4.2.3.10 Removing the PF Encoder

1. Disconnect the PF Encoder cable connector.

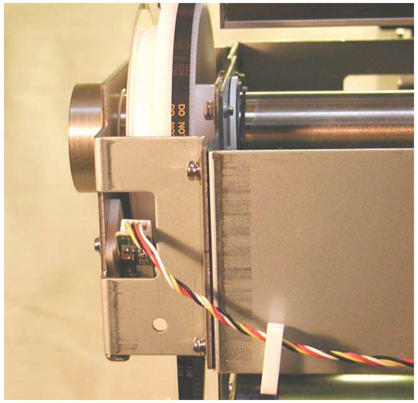

Cable connector

Figure 4-120.

2. Loosen the set screw (2mm), and remove the bearing stopper.

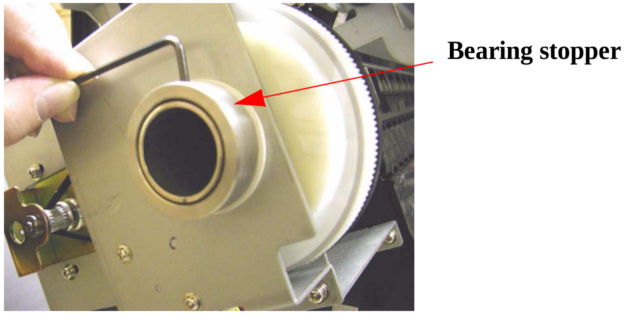

Bearing stopper

Figure 4-121.

3. Remove four serews fixing the PF base.

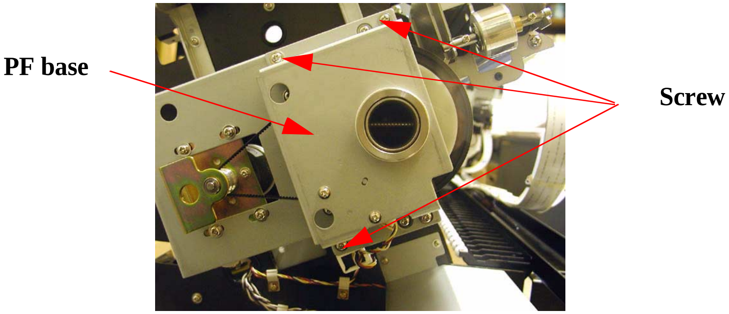

PF base
Screw

Figure 4-122.

4. Remove the Grid spacer and the Grid end.

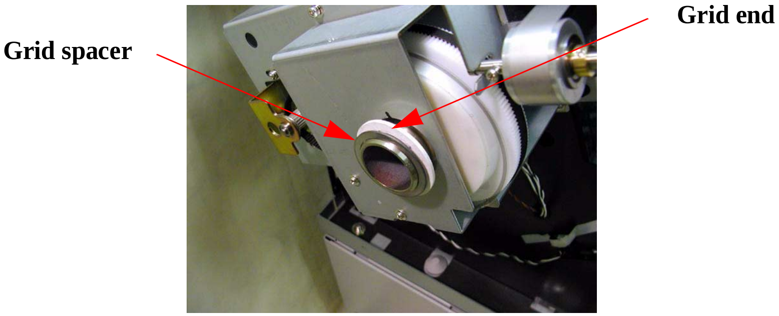

Grid spacer
Grid end

Figure 4-123.

5. While holding down the PF encoder from inside, remove two screws and remove the PF encoder.

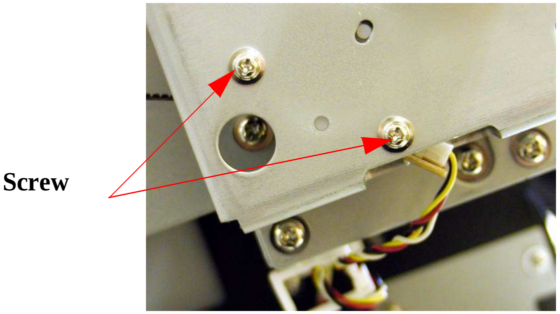


Figure 4-124.

CAUTION

- **When assembly,attach the PF encoder after plug the PF loop scale to the sensor department of the PF encoder.**
- **Do not scars and touching the PF loop scale.**
- **When assembly, attach the grid end after two places of bosses are combined with the hole of the PF base.**
- **The grid spacer have to be set to the direction that has a ditch side.**

4.2.3.11 Removing the Cleaning Unit

ADJUSTMENT REQUIRED

If you replace the waste ink absorbers because the service call error 0000100 occurs, you need to replace the specified parts* in the Cleaning Unit. After replacing them, be sure to initialize the following counters:

- **Waste ink counter**
- **Cleaning unit counter**

**** Parts to be replaced: Pump Motor, Cap ASSY, Pump ASSY, Cleaner Head, and Flushing Box ASSY***

NOTE: The above mentioned parts are available as a kit:
[Description] MAINTENANCE KIT
[Parts code] 1054038

CAUTION

When you replace the Cleaning Unit, ink may spill from the ink tube connected to the pump ASSY. Therefore, wipe the ink around the ends of the ink tubes preliminarily.

1. Remove the R Side Cover as described in “R Side Cover Removal 124.
2. Remove the Rear Cover as described in “Rear Cover Removal 126.
3. Disconnect the cables for the two Motor ASSY from its connector CN12 / CN13 on the C362DRV board, and take the cables out from the hole in the R side frame.

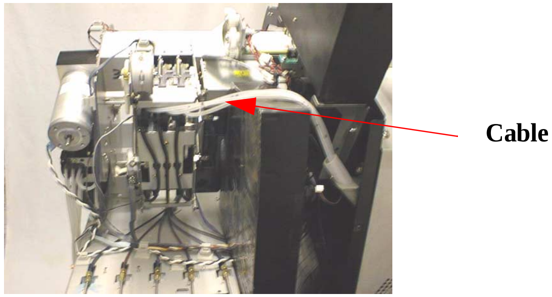


Figure 4-125.

4. Disconnect the cable connector connected to CN10 on the CSIC board.

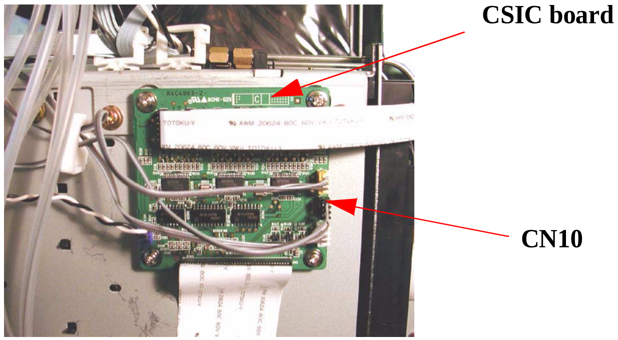

CSIC board
CN10

Figure 4-126.

5. Pull out three waste ink tubes from tube.

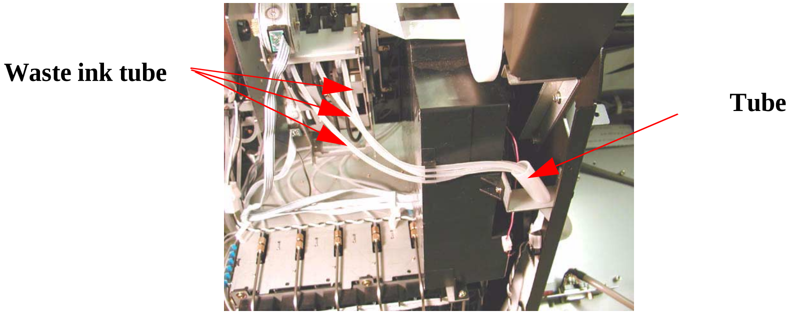

Waste ink tube
Tube

Figure 4-127.

6. Lift up the ink pump ASSY to release the carriage lock, and move the carriage away from the home position.

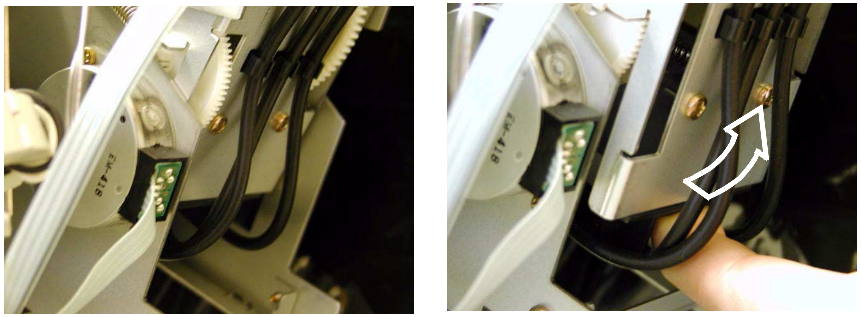


Figure 4-128.

7. Hold the Cleaning Unit with your hand then remove two screws (:M4x8) securing Cleaning Unit to the CR guide rail.

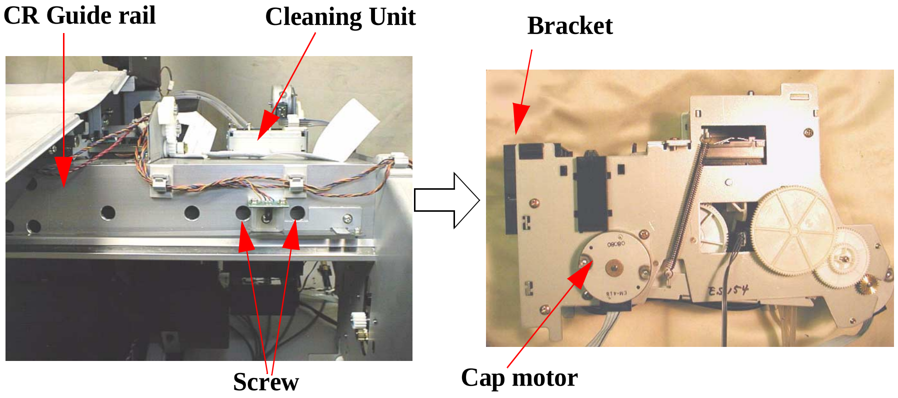

CR Guide rail
Cleaning Unit
Bracket
Screw
Cap motor

Figure 4-129.

CAUTION

When secure the screw, pay attention so as not to drop the screw into the CR guide rail by using the magnet driver. (It is because be not seen the place when the screw is dropped into the CR guide rail.)

Do not scar the steel belt.

Do not touch the cleaner head and the cap.

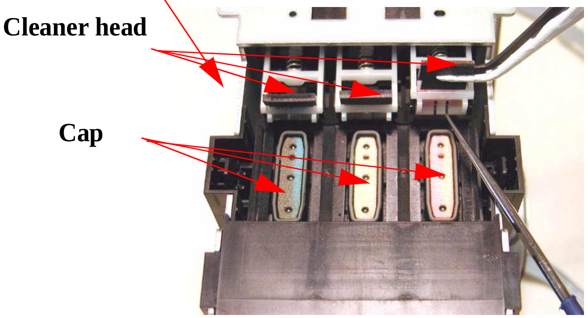


Figure 4-130.

4.2.3.12 Removing Flushing Box

1. Pull out three waste ink tubes from tube clump.
2. Disconnect the connector of the fan cable, that is jointed to connector CN35 on the C362DRV board in the joint adapter department of the R side frame.
3. Remove two screws (: M4x8) fixing the flushing box, then shift the flushing box to the left a little.

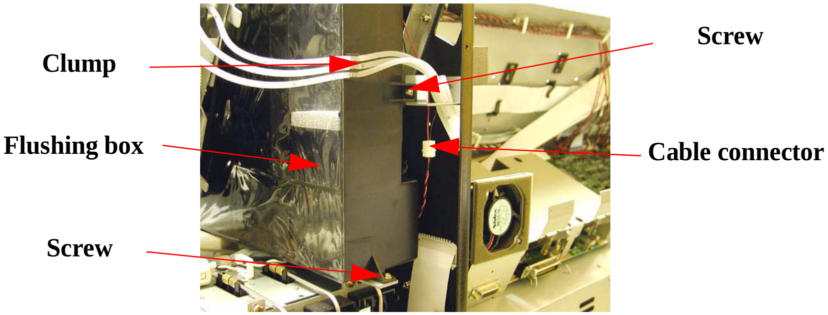

Clump
Flushing box
Screw
Screw
Cable connector

Figure 4-131.

4. Remove the waste ink tube from the tube clamp on the waste ink unit, then remove the flushing box with the waste ink tube.

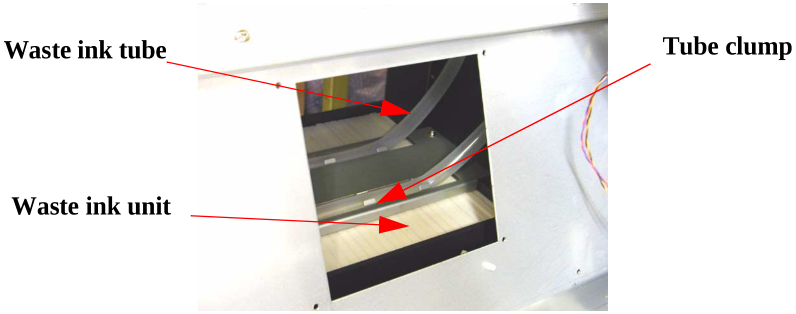

Waste ink tube
Waste ink unit
Tube clump

Figure 4-132.

CAUTION

When remove the waste ink tube, do the measure so as not to get dirty with the rag etc. because there is the possibility that the remaining ink leaks.

4.2.3.13 Removing Dot Missing Detector

WARNING

This unit contains laser generation elements. Be careful handling this unit. Read precautions given in the preface.
The following label is attached on the unit.

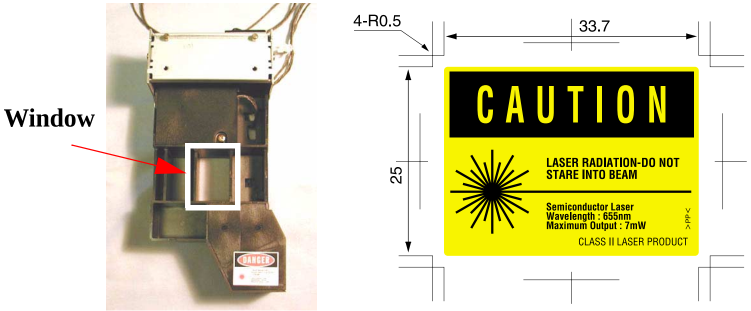

Window
4-R0.5
33.7
25
CAUTION
LASER RADIATION-DO NOT STARE INTO BEAM
Semiconductor Laser
Wavelength : 655nm
Maximum Output : 7mW
CLASS II LASER PRODUCT

Figure 4-133.

ADJUSTMENT REQUIRED

In the case that removed or exchanged the Dot missing detector, carry out the dot missing offset adjustment.

1. Pull out three waste ink tubes from tube clump.
2. Remove the Flushing Box as described in “Removing Dot Missing Detector 171.
3. Lift up the ink pump ASSY to release the carriage lock, and move the carriage away from the home position.

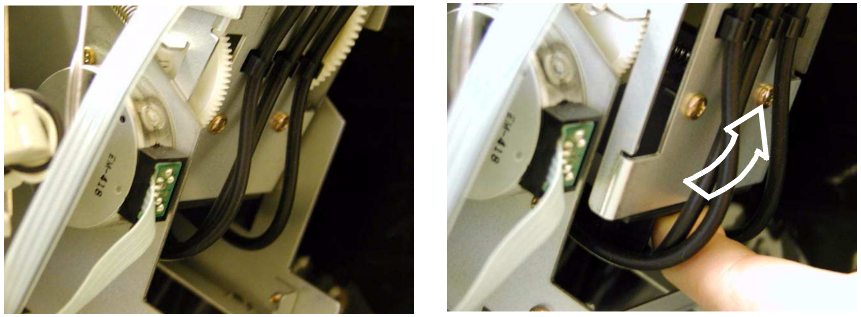


Figure 4-134.

4. Disconnect the connector connected to CN17, CN18 on the C362DRV board, then remove it.

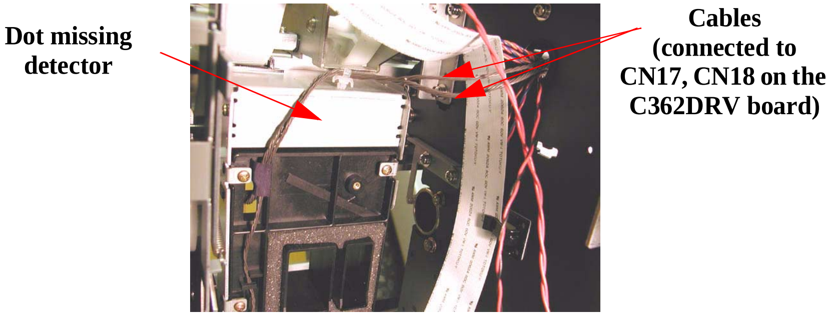

Dot missing detector
Cables (connected to CN17, CN18 on the C362DRV board)

Figure 4-135.

5. Disconnect the cable for the panel unit from the cable clump on the Dot missing detector.

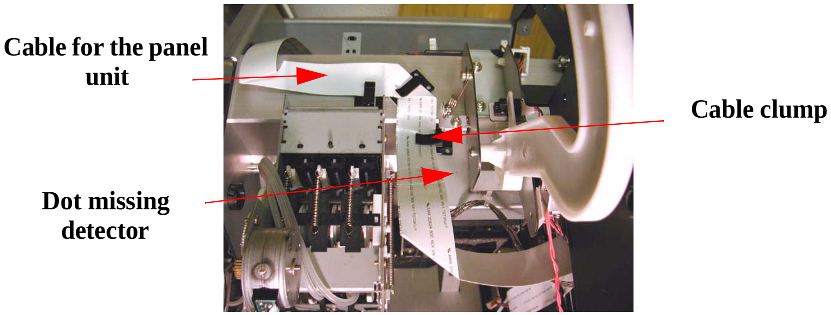

Cable for the panel unit
Cable clump
Dot missing detector

Figure 4-136.

6. Hold the Dot missing detector with your hand then remove the two screws (:M4x8) securing the Dot missing detector to the CR guide rail, then remove the Dot missing detector.

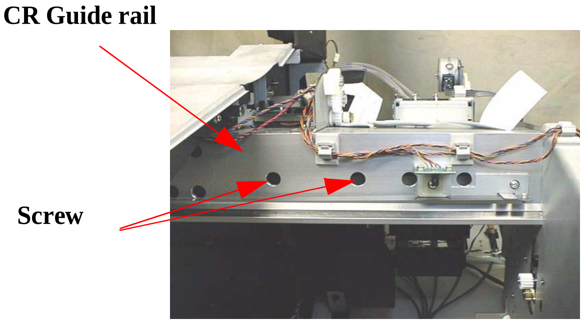

CR Guide rail
Screw

Figure 4-137.

CAUTION

When secure the screw, pay attention so as not to drop the screw into the CR guide rail by using the magnet driver. (It is because be not seen the place when the screw is dropped into the CR guide rail.)
Do not scar the steel belt.

4.2.3.14 Removing the Suction Control Motor

1. Disconnect the cable connector connected to CN14 on the C362DRV board.

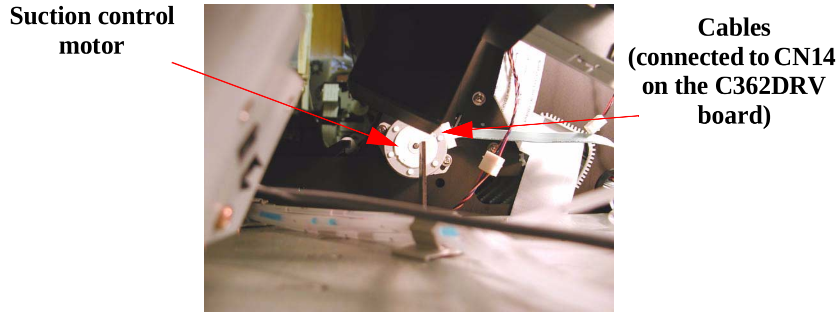

Suction control motor
Cables (connected to CN14 on the C362DRV board)

Figure 4-138.

2. Marking the suction control motor fixing position.
3. Remove two screws fixing the suction control motor, then remove it.

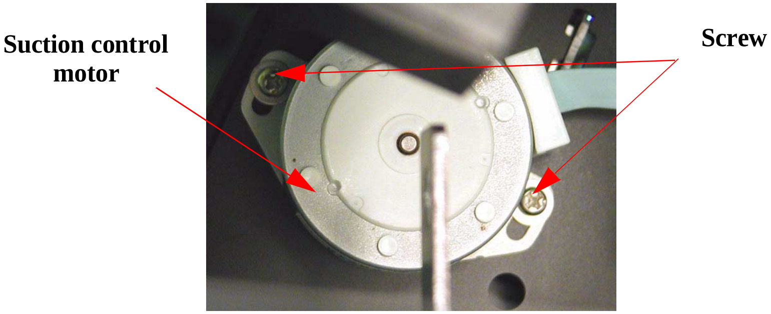

Suction control motor
Screw

Figure 4-139.

4.2.3.15 Removing the Ink Pump ASSY

1. Remove the Cleaning Unit as described in “Removing the Cleaning Unit” (“Removing the Cleaning Unit 167.)
2. Disconnect the cables for the ink release plunger and Ink Pump Motor from its connector CN11 / 25 on the main board, and take the cable out from the hole in the R side frame.
3. Disconnect the cable from sensor connector.

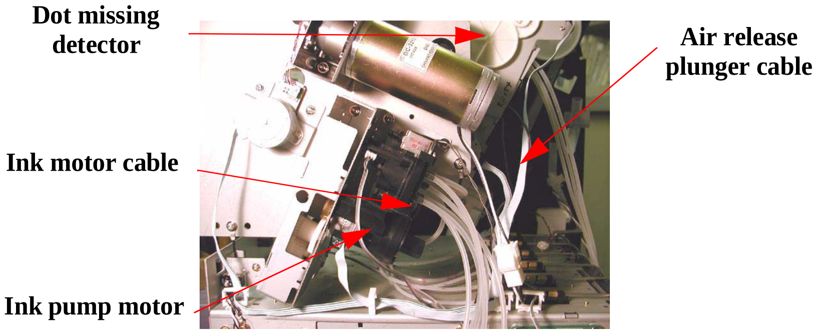

Dot missing detector
Air release plunger cable
Ink motor cable
Ink pump motor

Figure 4-140.

4. Remove five screws (:M4x8) securing “Ink Pump ASSY”.

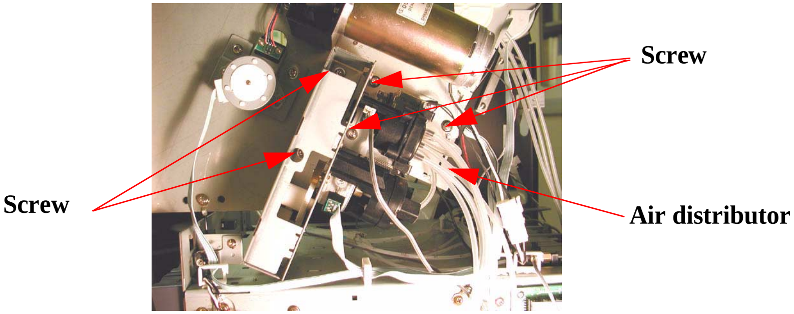

Screw
Screw
Air distributor

Figure 4-141.

5. Disconnect the six tubes from the air distributor.

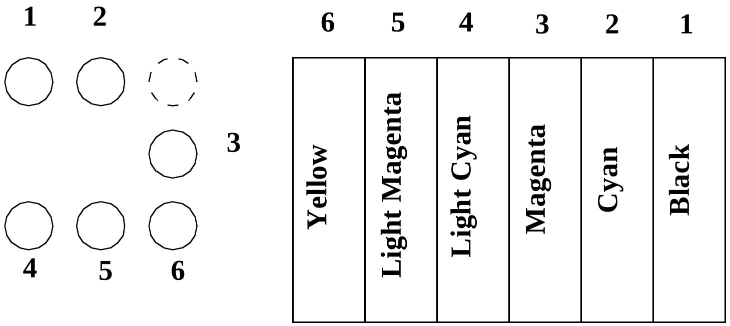

1
2
3
4
5
6
6
5
4
3
2
1
Yellow
Light Magenta
Light Cyan
Magenta
Cyan
Black

Figure 4-142. Air tube location

4.2.3.16 Removing the T Fence (Scale 180a)

1. Remove the R Side Cover as described in “R Side Cover Removal 124.
2. Remove the L Side Cover as described in “L Side Cover Removal 124.
3. Remove the H Top cover as described in “H Top Cover Removal 123.
4. Marking 7 place of the T fence hold position.
5. Loosen two revolution 7 place of the T fence hold, then lift up it and fixed.

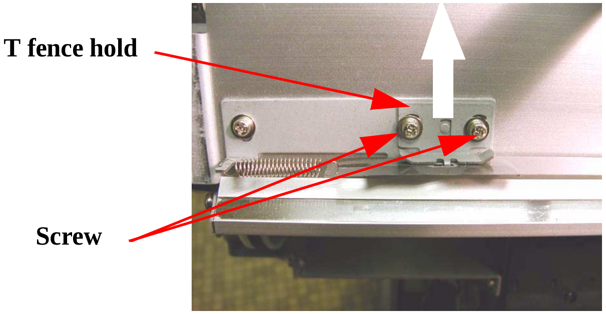

T fence hold
Screw

Figure 4-143.

6. Remove the left side of tention spring.

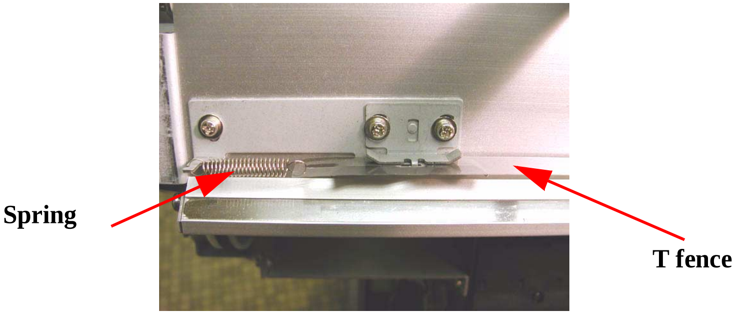

Spring
T fence

Figure 4-144.

7. Remove a right side edge screw (M3x6), then remove the T fence (Scale 180a).

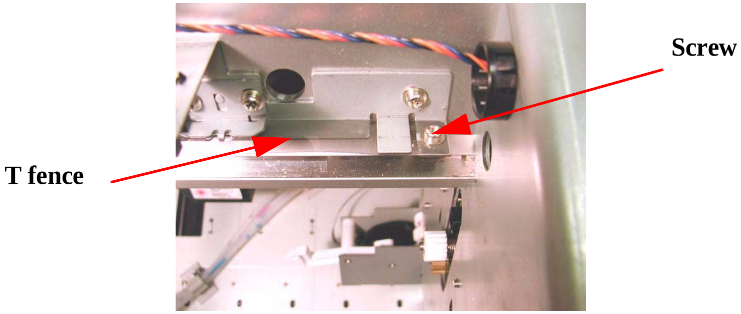


Figure 4-145.

CAUTION

When assemble, Adjust the positions of 7 T fence hold, so that the T fence (scale 180a) becomes a straight line.

4.2.3.17 Removing the Paper Hold Solenoid

1. Remove the R Side Cover as described in “R Side Cover Removal 124.
2. Remove the L Side Cover as described in “L Side Cover Removal 124.
3. Remove the H Top cover as described in “H Top Cover Removal 123.
4. Remove the Cleaning unit, the Flashing box, the Dot missing detedtor. (Refer to “Removing the Cleaning Unit 167 /“Removing Flushing Box 170 / “Removing Dot Missing Detector 171)
5. Disconnect the cable for the Paper Hold Solenoid cable from the cable connector.

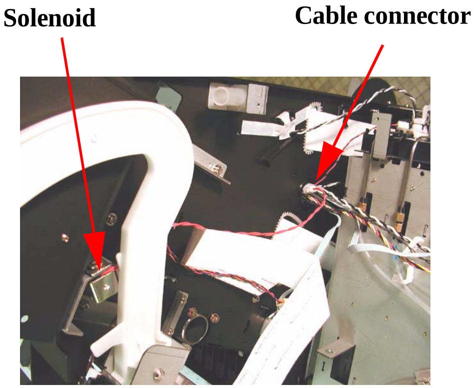


Figure 4-146.

6. Remove right side two screw (M4x6) and front upper side two screw (M4x6), then remove the Paper Hold Solenoid with bracket.

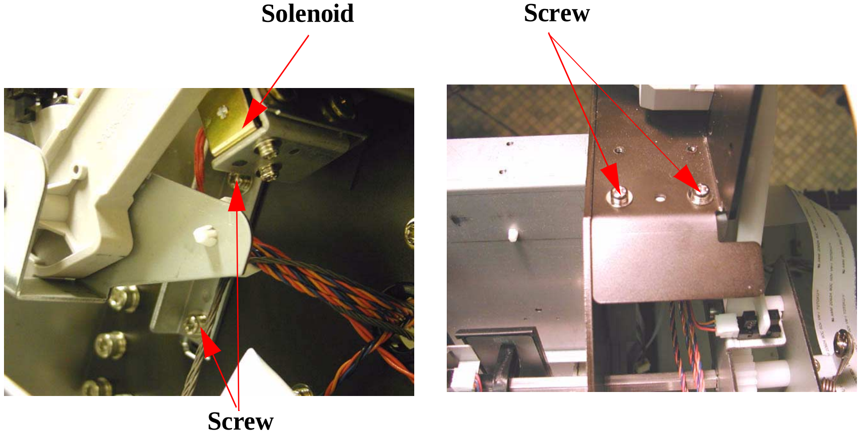


Figure 4-147.

7. Remove one screw (M3x6) securing solenoid armature.
8. Remove two screws (M3x6) securing solenoid coil, then remove the Paper Hold solenoid.

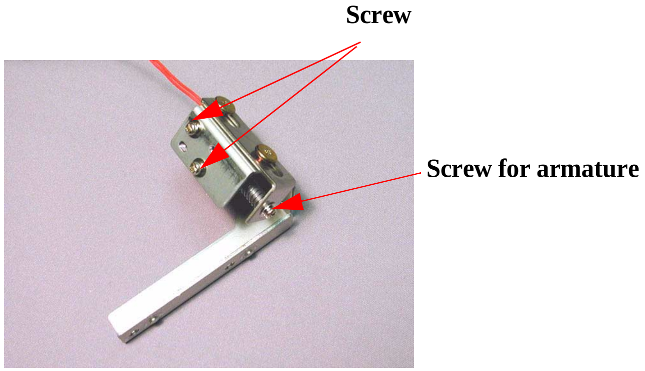


Figure 4-148.

CHECK POINT **When installing the Paper Hold Solenoid, make sure the lock lever move smoothly. Otherwise loosen the armature screw and secure it again.**

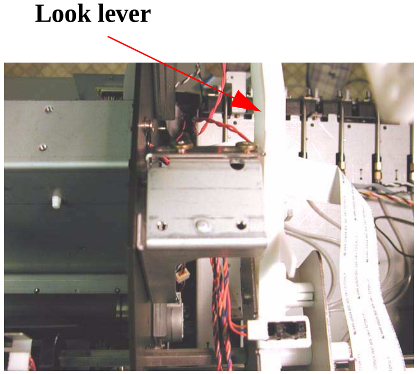


Figure 4-149.

4.2.3.18 Removing the HEAD_SLIDE Sensor ASSY

1. Remove the R Side Cover as described in “R Side Cover Removal 124.
2. Remove the Rear Cover as described in “Rear Cover Removal 126.
3. Disconnect the harness for the HEAD_SLIDE Sensor ASSY from its connector CN52 on the C362DRV board and take the harness out from the hole in the R Side Frame.

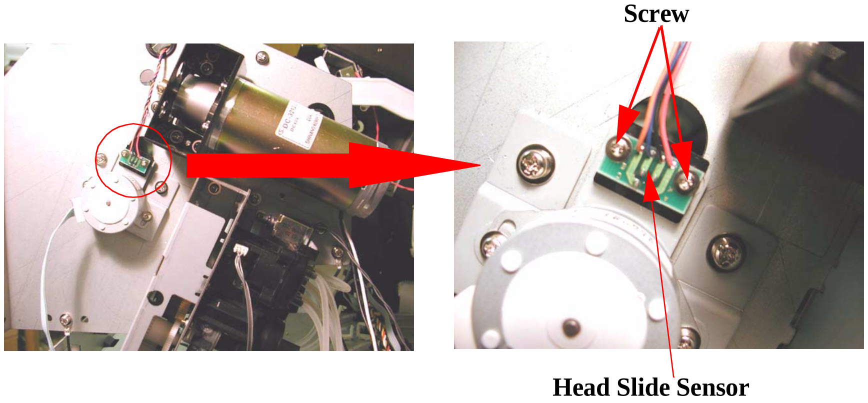

Screw
Head Slide Sensor

Figure 4-150.

4. Remove the two screws (CP(W) M1.2x8) securing the HEAD_SLIDE Sensor ASSY and remove the HEAD_SLIDE Sensor ASSY.
5. Release the harness for the HEAD_SLIDE Sensor ASSY from the cable clamps.

4.2.3.19 Removing the PG Motor / Drive Gear

1. Remove the R Side Cover as described in “R Side Cover Removal 124.
2. Remove the Rear Cover as described in “Rear Cover Removal 126.
3. Marking the PG motor fixing position.

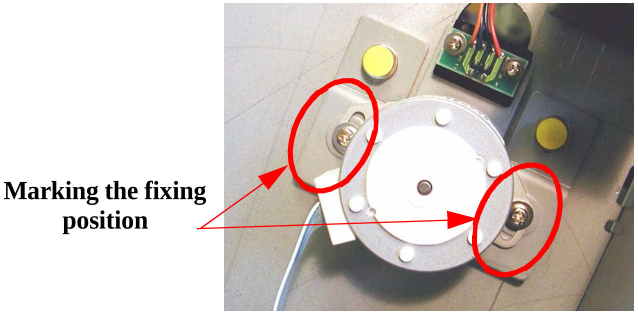

Marking the fixing position

Figure 4-151.

4. Disconnect the harness for the PG motor from its connector CN15 on the C362DRV board and take the harness out from the hole in the R Side Frame.

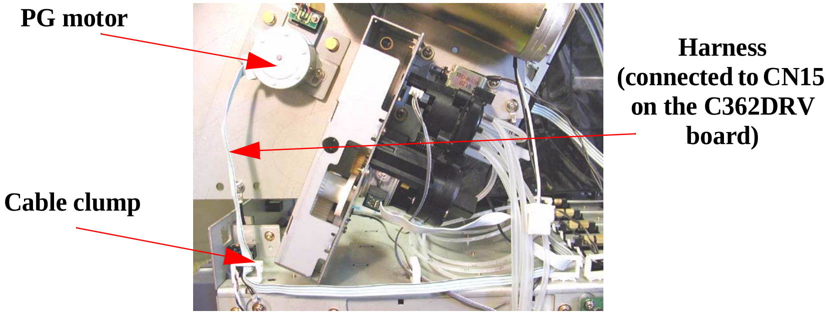

PG motor
Harness (connected to CN15 on the C362DRV board)
Cable clump

Figure 4-152.

5. Confirm the fixing location of the motor gear of inside. (Confirm the size of the backlash with the drive gear.)

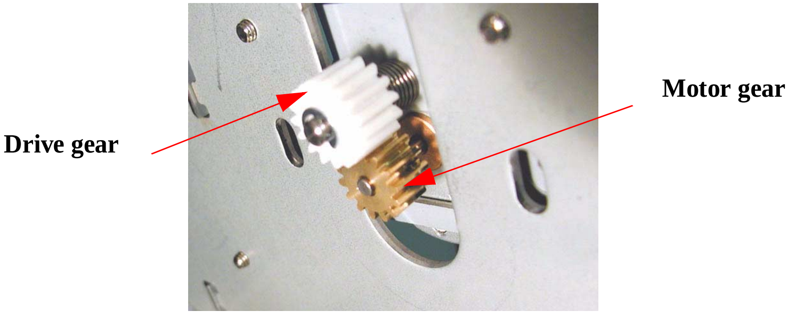


Figure 4-153.

6. Remove two screws fixing the PG motor, then remove the PG motor.

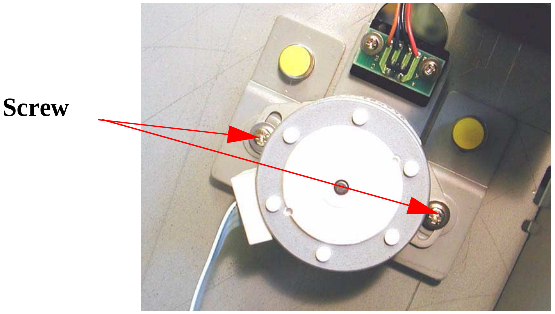


Figure 4-154.

7. In the case that remove the drive gear : Remove the E ring with holding down the drive gear, then remove the drive gear.

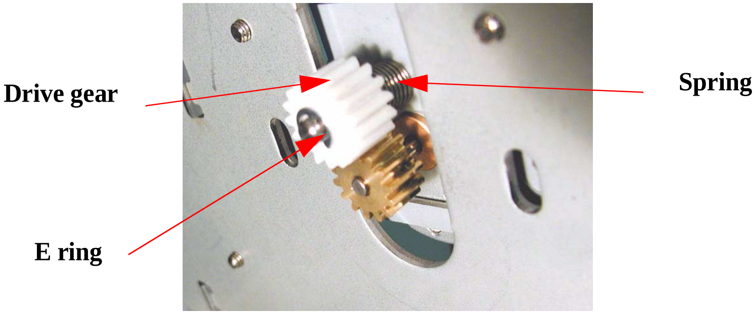


Figure 4-155.

CAUTION

When remove the drive gear, pay attention because the drive gear closes have jumped by the spring, when remove the E ring without holding down the drive gear.

CAUTION
!

- **Confirm that is attached to the location that did the marking in the advance on the occasion of the mounting of the PG motor.**
- **Confirm that the backlash of the motor gear and drive gear are the same size on the occasion of the mounting of the PG motor.**

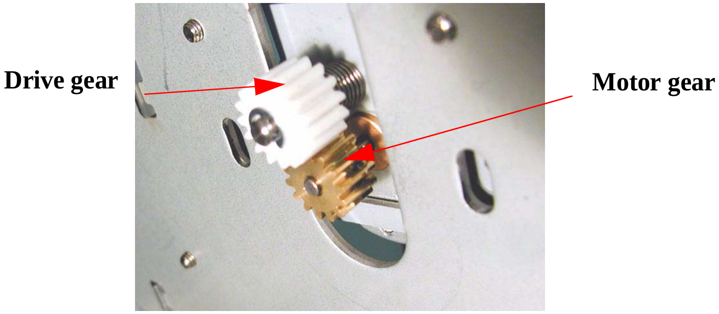


Figure 4-156.

- **Do not remove and also loosen the bracket fixed screw that is shown with the seal in the figure.**

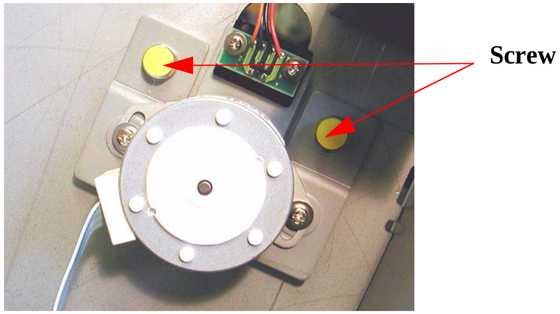


Figure 4-157.

4.2.3.20 Removing the CR_HP Sensor

1. Remove the R Side Cover as described in “R Side Cover Removal 124.
2. Push the carriage lock using your finger to unlock the carriage and move the carriage from the home position to the left. (Refer to the “Replacing the Printheads 151 step 3.)
3. Unlock three latches of the CR_HP sensor, then remove it.

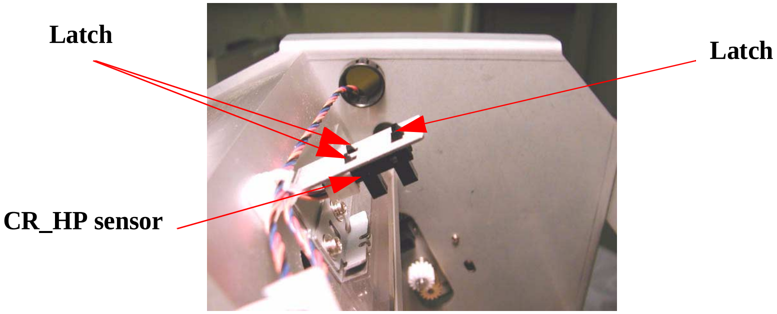


Figure 4-158.

4. Disconnect the cable connector of the CR_HP sensor.

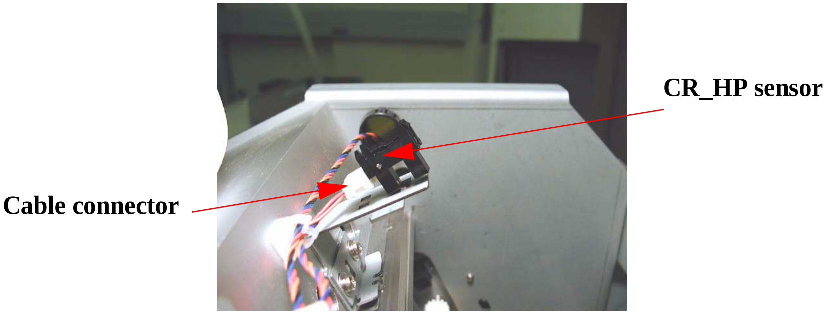


Figure 4-159.

CAUTION

When removing, do not remove and loosen the screw of the CR_HP sensor attachment bracket. (The home position have changed.)

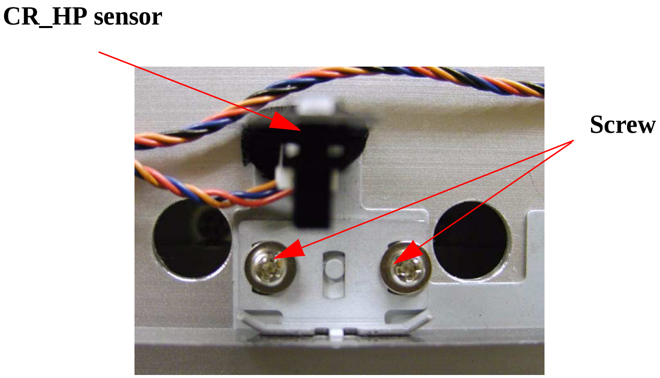


Figure 4-160.

4.2.3.21 Removing the Paper Release Sensor

1. Remove the R Side Cover as described in “R Side Cover Removal 124.
2. Remove the Rear Cover as described in “Rear Cover Removal 126.
3. Push the paper hold lever to the rear. (Lock condition)

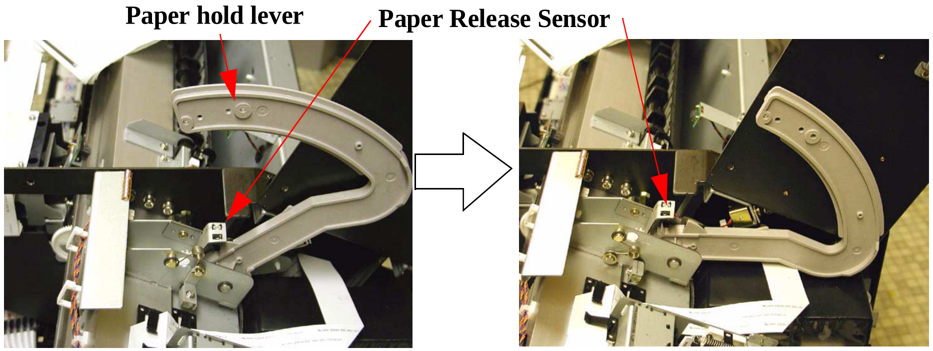


Figure 4-161.

4. Unlock five latches of the Paper Release Sensor, then remove it.
5. Disconnect connector cable of the Paper Release Sensor.

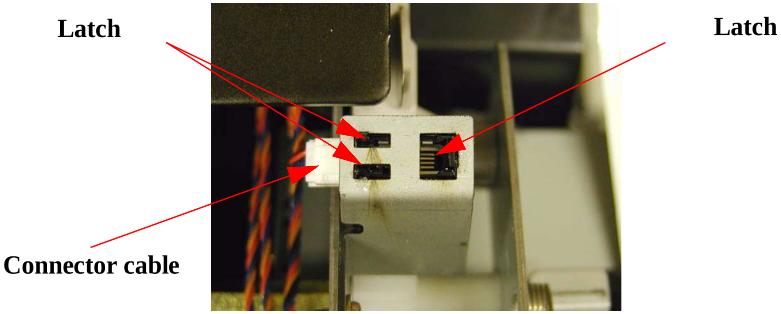


Figure 4-162.

6. Reference : Paper Release Sensor is connected to CN45 on the C362DRV board.

4.2.3.22 Removing the P_FRONT Sensor ASSY

1. Remove the R Side Cover as described in “R Side Cover Removal 124.
2. Remove the L Side Cover as described in “L Side Cover Removal 124.
3. Remove the Paper Guide L as described in “Paper Guide L Removal 128.
4. Remove the Rear Cover as described in “Rear Cover Removal 126.
5. Remove the Front Cover as described in “Front Cover Removal 130.
6. Disconnect the harness for the Paper_Front Sensor ASSY from the connector CN46 on the C362DRV board.
7. Remove a screw of the Paper guide L, and remove the Paper_Front Sensor bracket.

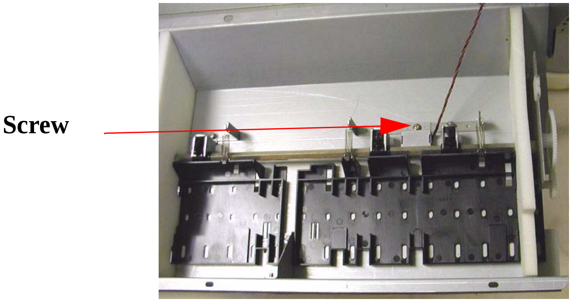


Figure 4-163.

8. Remove two screws (M1.2x8) securing Paper_Front Sensor to the bracket then separate it.

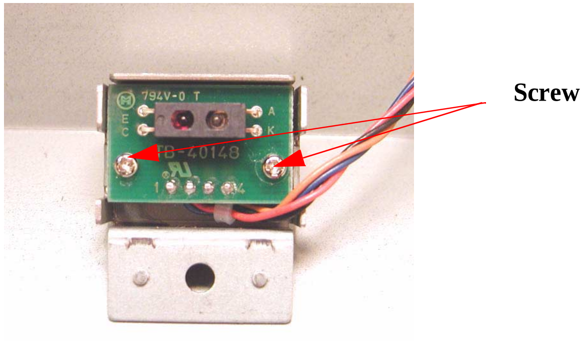


Figure 4-164.

9. Release the harness for the Paper_Front Sensor ASSY from the cable clamps then remove it.

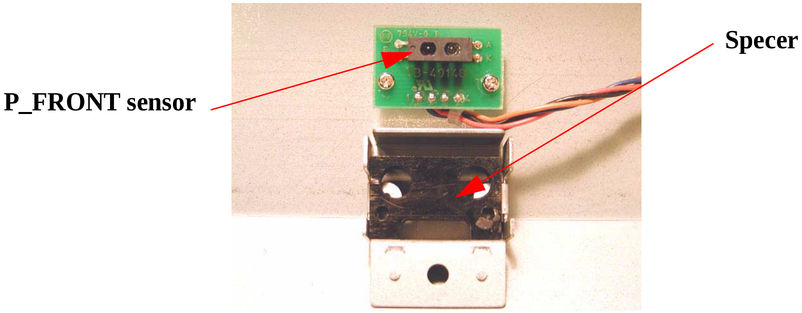


Figure 4-165.

NOTE: *Paper_Front Sensor ASSY position is adjusted at factory. Therefore, be sure to mark its current position before removing the screws.*

ADJUSTMENT REQUIRED

If you replace the Paper_Front Sensor ASSY, perform the necessary adjustment listed in Chapter 5.

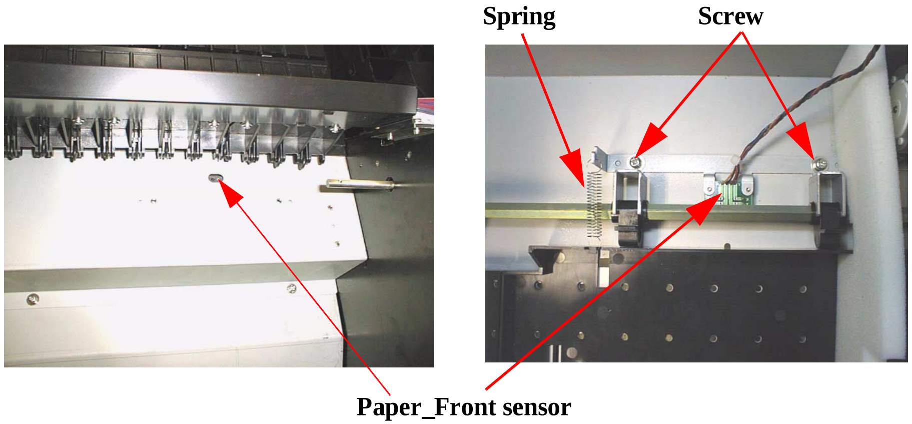


Figure 4-166.

CAUTION

When assembly, 2 places of bosses are combined.

4.2.3.23 Removing the P_REAR Sensor ASSY

1. Remove the R Side Cover as described in “R Side Cover Removal 124.
2. Remove the L Side Cover as described in “L Side Cover Removal 124.
3. Remove the H Top cover as described in “H Top Cover Removal 123.
4. Remove the Rear Cover as described in“Rear Cover Removal 126.
5. Remove the Paper Guide U as described in “Removing Paper Guide U 131.
6. Disconnect the cable for the P_REAR Sensor ASSY from its connector CN44 on the C362MAIN board.
7. Remove the two screws (CBS M2x6) securing the Paper Rear Sensor, and remove it.

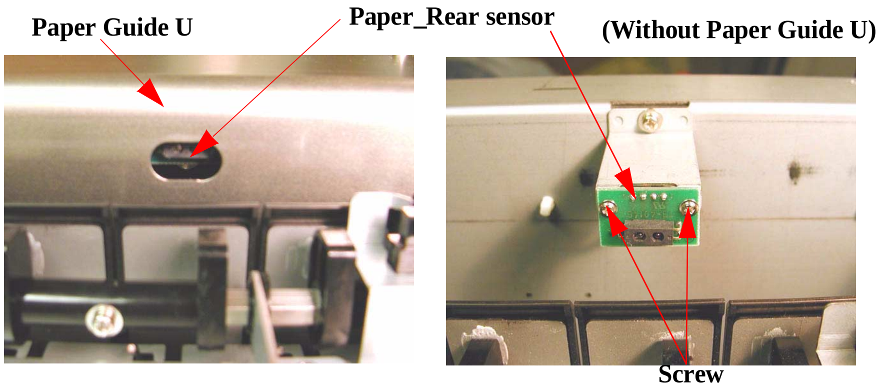


Figure 4-167.

8. Release the harness for the P_Rear Sensor ASSY from the cable clamps.

NOTE: *When removing/installing the Paper Guide U, be careful not to mar the P_REAR Sensor ASSY with the edge of the sensor inspection window.*

NOTE: *P_REAR Sensor ASSY position is adjusted at factory. Therefore, be sure to mark its current position before removing the screws.*

If you replace the P_REAR Sensor ASSY, perform the necessary adjustment listed in Chapter 5.

4.2.3.24 Removing the Front Cover Sensor ASSY

1. Perform the Steps 1 to 11 in “Front Cover Removal” (Paragraph “Front Cover Removal 130.)
   Front cover sensors are built in the both hinge unit.

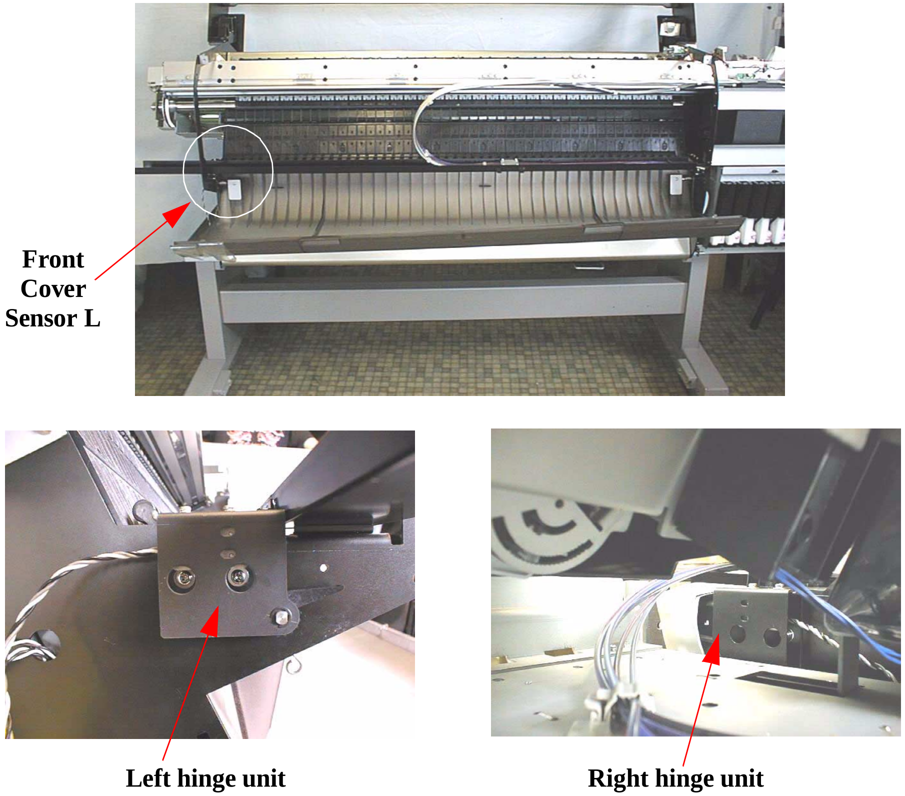


Figure 4-168.

2. Remove two screws (Mx8) securing Front Cover Sensor R.

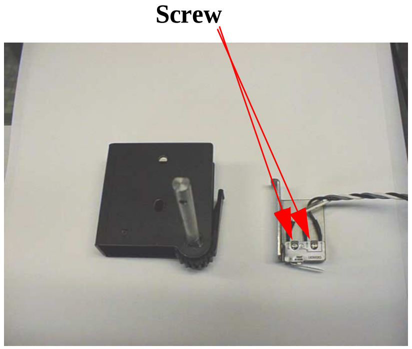


Figure 4-169.

3. Disconnect the cable connector CN5 on the C362DRV board.

ADJUSTMENT REQUIRED

Perform the necessary adjustment listed in Chapter 5. This adjustment is required to make the Cover Sensor ASSY work interlocking with the close/open status of the Front Cover.

4.2.3.25 Removing the I/C Holder Cover Sensor ASSY

1. Remove the R side Cover as described in “R Side Cover Removal 124.
2. Remove the I/C Holder Cover as described in “I/C Holder Cover Removal 125.
3. Disconnect the cable connector from the CN1 on the CSIC board, then remove from two clamps.

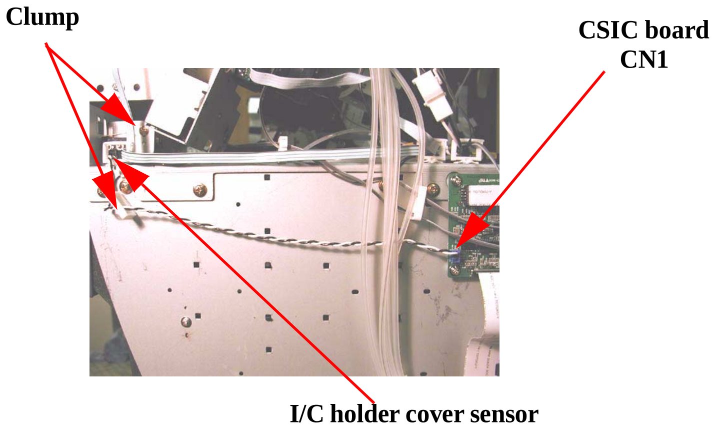


Figure 4-170.

4. Remove two screws on the I/C holder cover sensor, then remove it.

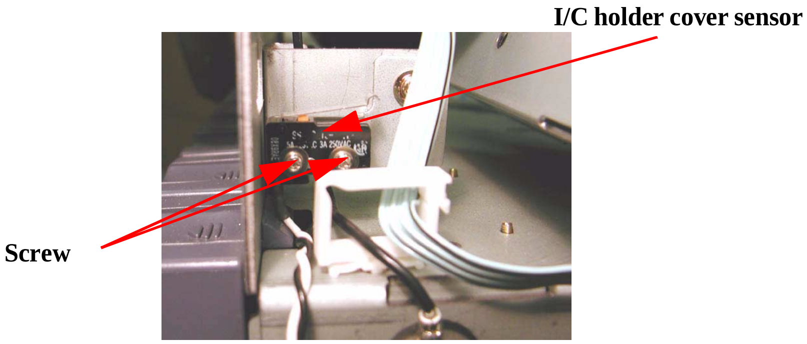


Figure 4-171.

4.2.3.26 Removing the P_THICK Sensor

1. Remove the H Top Cover as described in “H Top Cover Removal 123.
2. Push the paper hold lever to the front. (Unlock condition)

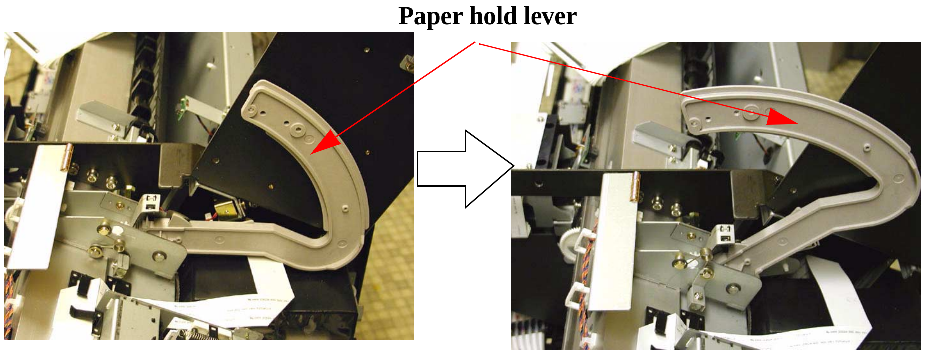

Paper hold lever

Figure 4-172.

3. Marking the P_THICK sensor bracket position on the CR guide rail.

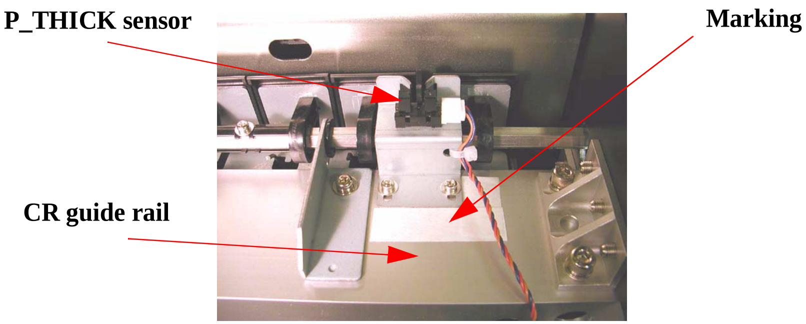

P_THICK sensor
Marking
CR guide rail

Figure 4-173.

4. Remove two screws (M3x6) fixing the P_THICK sensor.

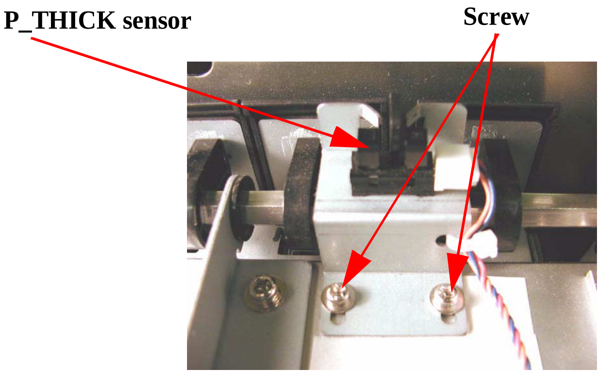

P_THICK sensor
Screw

Figure 4-174.

5. Disconnect the cable connector from the P_THICK Sensor.

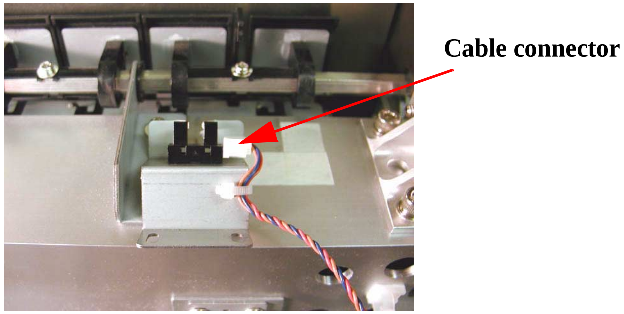

Cable connector

Figure 4-175.

6. Unlock rear side three latches, then separate the P_THICK sensor to the bracket.

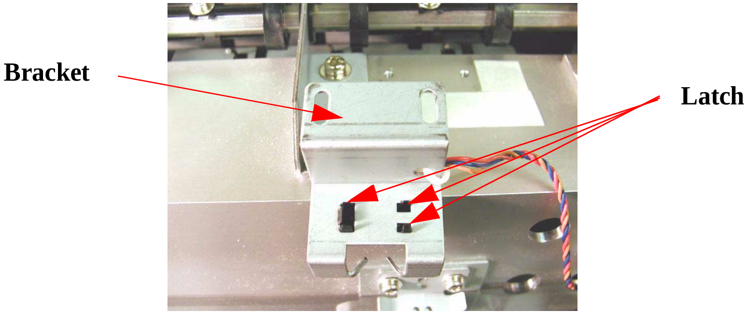


Figure 4-176.

NOTE: *Sensor bracket position is adjusted at factory. Therefore, be sure to mark its current position before removing the screw.*

ADJUSTMENT REQUIRED

If you move the sensor bracket position, perform the necessary adjustment listed in "Service Parts & Required Adjustments,".

CHAPTER

5

ADJUSTMENT

5.1 Adjustment Outline

This section describes the adjustment procedures necessary after replacing certain parts and explains how to perform those adjustment procedures.

5.1.1 Precautions

Before beginning any adjustment procedure, make sure of the following.

CAUTION

- **Before starting any adjustment procedure, find the adjustment procedure you need to perform in Table 5-2 and verify the order or the tasks you need to perform.**
- **When performing an adjustment procedure, double-check the detailed instructions and caution information for that procedure; otherwise you may damage the printer.**
- **When replacing the following, always install a new ink cartridge.**
  • Ink supply system part: Print head, I/H Assy.,Ink tube, Head damper

5.1.2 Adjustment Tools

The necessary tools for performing adjustment procedures on this printer are shown below.

Table 5-1. Adjustment Tools

Name	Part Code	Notes
Tension Gauge #F712	B747700300/ Standard tool	Max. 4000g
User's data memory card	1050073 Standard PC card acceptable	Type: 2MB Flash memory card Standard: Type-II (PCMCIA Rel 2.1/JEIDA Ver. 4.2) Voltage: 5V Read/Write
Program data memory card		
44 inch roll paper	EPSON special media	Necessary for mechanism-adjustment printouts
A3 Tracing paper	Kimoto brand: MicroTrace #300LMB	Necessary to determine P_FRONT and P_REAR sensor volumes
A3 copy paper	Standard paper	Necessary to determine P_EDGE sensor volume
(+)Screw driver(2)	Standard tool	
Tension Gauge with attachment	EPSON special tool	300g
Screw lock tight		
Filler gauge(0.6mm)	Standard tool	0.6 mm
Filler gauge(0.7mm)	Standard tool	0.7 mm
Precision screw driver	Standard tool	
Ink discharge cartridge	1060627	Ink type detection
Cleaning liquid cartridge	1060626	Print head and tube cleaning
Cutter positioning tool	1070178	Cutter blade position adjustment
CR-ENC setting tool	1070171	CR-RNC position adjustment
Scale insertion tool	1070174	CR_loop scale fixing
Starter Cartridge Lc	1062231	Stylus Pro 10000 (except EAI market)

Table 5-1. Adjustment Tools

Name	Part Code	Notes
Starter Cartridge Lc	1062243	Stylus Pro 10000CF (Except EAI market)
Starter Cartridge Lc	1062237	Stylus Pro 10000 (EAI market)
Starter Cartridge Lc	1062249	Stylus Pro 10000CF (EAI market)

5.1.3 Adjustment Items

All parts that require adjustment when replaced are listed in the table below.

Table 5-2. Service Parts & Required Adjustments

Service Operation	Adjustment Items	Refer to page
Printhead replacement	<Start-up the Self-diagnostics> 1. Head rank input (and initial ink charge) 2. Nozzle check 3. Head slant adjustment 4. Bi-D adjustment 5. Head LR adjustment 6. Test print 7. Print head life counter clear	Refer to the Paragraph 5.3
C362 DRV Board replacement	1. <Parameter backup> *1 2. <Reload firmware> <Start-up the Self-diagnostics> 3. Ensure the capping position 4. Write D/A Value 5. Input head rank (Not necessary ink charge initialize) 6. Bi-d adjustment 7. Feed adjsutment 8. Paper feed adjsutment 9. Top & Bottom adjustment 10.Rear sensor position adjustment 11.Paper sensor adjustment 12. Test print 13.<Replace waste ink pads then clear the ink counter.) 14.Write USB-ID	Refer to the Paragraph 5.2.1,5.2.2,5.3
C362MAIN Board replacement	<Reload firmware>	“Firmware Upload” on page 193

Table 5-2. Service Parts & Required Adjustments (continued)

Service Operation	Adjustment Items	Refer to page
Sensor assembly replacement • P Front • P Edge	<Start-up the Self-diagnostics> 1. Paper-Related Sensor adjustment 2. Top/bottom adjustment	Refer to the Paragraph 5.3
CR Motor replacement	1. <CR timing belt tension adjustment>:Tension Gauge is required. <Start-up the Self-diagnostics> 2. Bi-d adjustment 3. Top & Bottom adjustment 4. Test print	Refer to the Paragraph 5.2.3.1
PF Motor replacement	1. <PF timing belt tension adjustment>:Tension Gauge is required. <Start-up the Self-diagnostics> 2. Feed adjsutment 3. Top & Bottom adjustment 4. Rear sensor position adjustment 5. Test print	Refer to the Paragraph 5.2.3.2
Sensor assembly replacement P_REAR/P_Front/ P_EDGE	<Start-up the Self-diagnostics> 1. Sensor adjustment	Refer to the Paragraph 5.3
Sensor assembly replacement P Thick	<Start-up the Self-diagnostics> From the "Test" menu select "Sensor" and then "Paper Thickness" Required tool: Filler Gauge	Refer to the Paragraph 5.3
Sensor assembly replacement Cover Sensor	<Start-up the Self-diagnostics> From the "Test" menu select "Sensor" and then "Cover"	Refer to the Paragraph 5.3

*1: If you can backup the parameters, replace the main board and upload the parameters into the new board. A successful backup means no adjustment is required using the self-diagnostic function.

5.2 Adjustment Steps

This section describes the detailed steps for performing the adjustment procedures listed in Table 5-2.

CHECK POINT

If you can backup the parameters correctly, replace the main board and upload the parameters into the new board. A part of the adjustment that used self-diagnostic function becomes unnecessary. In this case, take the next procedure.

1. **Back up the parameters as described in “Parameter Backup” on page 191.**
2. **Replace the C362Main board as described in chapter 4.**
3. **Down load the parameters as described in “Parameter Backup” on page 191.**
4. **Upload the firmware as described in “Firmware Upload” on page 193.**
5. **Perform the paper-related sensor adjustment.**

5.2.1 Parameter Backup

The C362Main Board contains NVRAM (Flash-ROM & EEPROM) which is used to store the parameter information and firmware commands that control the printer. This parameter includes "Panel setting value", "Exclusive parameters for C362Main board (Unerasable)" and "Mechanism adjustment value".

When exchange the C362MAIN board, you can maintain the matching with current printer mechanism and eliminate several adjustment operations with backup of the "panel setting value" and mechanism adjustment value that are stored in the previous C362MAIN board and restore them to the new one.

Backup operations: Uploads the backup parameter (data) that is stored in the flash memory of current C362MAIN board, then write to the flash memory card on the new C362MAIN board.

REQUIREMENTS FOR PARAMETER BACKUP

☐ #F727 Flash Memory Card (1050073))
(Conforms to PCMCIA Rel 2.1/JEIDA Ver 4.2 (Type II) / 5V Read/Write operation)
Part # 1050073 (Fujitsu: MB98A81183-15)

☐ Memory card writing utility
(i.e. Adtech CardUT97)

☐ PC with memory card writer or stand alone memory card writer

☐ IPL contained in the following directory in the service manual data disk.
Folder: \Prog\Ipl\
File: *******.ROM
Before backing up the parameters to the PC card, the above file must be written to the Flash Memory Card using the card writing utility:

CAUTION

The backup card you use in these steps only works with the Stylus Pro 10000/10000CF; do not attempt to use it with other printers.
Do not use the backup card for the others. The programs vary and using the wrong program may cause a wide variety of problems depending on which parameter(s) are written incorrectly.

BACKING UP PARAMETERS FROM MAIN BOARD TO MEMORY CARD.

1. Remove the slot cover (two screws) from the rear of the printer, and make sure the operation panel unit is attached
2. Insert the Memory card (top facing the outside of the printer) into the PC card slot connector (CN20) on the Main Board, and then turn on the printer.
3. Make sure the following message appears on the LCD.

Wait:F->M Push:M->F

4. Press any button on the operation panel within 15 seconds. Start up the down loading operation when the button is depressed.

Mcard -> Flash

CHECK POINT

You need to press any button on the control panel within 15 seconds; otherwise the printer will start the backup procedure instead of the download procedure. This overwrites parameter data stored in the memory card with data stored in the Main Board Flash memory. In other words, this clears the parameters!

5. When the backup procedure is finished, the following message appears.

End [Success]

6. After making sure the printer is finished, turn off the printer and remove the memory card.
7. Install the slot cover with two screws.

BACKUP/DOWNLOAD ERROR RECOVERY

If an error occurs during the backup or download procedure, the following message appears on the LCD.

End [Error]

If you find the message above, one of the following errors has occurred. Using a different Memory card, try the operation again.

and retry it again.

- Flash memory/ write error
- Flash memory/ erase error
- Memory card/ write error
- Memory card/ erase error

If a different memory card does not solve the problem, there is a problem with the flash memory on the Main Board and a backup is not possible.

RANGE OF BACKED UP PARAMETERS

The following parameters on the C362 Main Board are backed up during the back up operation.

Flash ROM addresses 000~5FF<H> (except for 120~13F<H>)

5.2.2 Firmware Upload

Since the firmware is written into the Flash ROM on the C362 Main Board, to replace the Main Board you need to write the firmware to the new Flash ROM on the new Main Board as described below.

CAUTION

- **After uploading the firmware to the new Main board, the printer automatically perform an initial ink charge at the next power on. For this reason, if the initial ink charge is not necessary, perform the following instructions below after updating the firmware.**

1. Start up the self diagnostics at the power on.

2. Select the "Parameter: Update" from the “Check: Parameter” then press Enter.
3. Select the "Update: InkParameter" then press Enter.
4. Select the “Init.Fill: Reset” from the "Init.Fill: xxxx "then press Enter.
5. Turn the printer off and back on.

- **Use the appropriate firmware update tool for the method you use:**
  PC parallel interface (Compatibility mode): xxxxxxxx.IPL
  PC memory card: xxxxxxxx.ROMT

CHECK POINT

Use the appropriate firmware update tool for the method you use:
PC parallel interface (Compatibility mode): xxxxxxxx.IPL
PC memory card: xxxxxxxx.ROM

UPLOADING FIRMWARE VIA PC

1. Make sure “Ready” appears on the LCD. Press the "SelecType" button multiple times until “Printer Status Menu” appears. Then press the "Item" button.
   “Version B0xxxx” appears. Write down the version number.
2. Turn off the printer and disconnect the AC cable. Then connect the interface cable (Parallel/Compatible Mode) between the PC and printer.
3. Connect the AC cable.While pressing the following buttons, turn on the printer.
   [Paper Source] + **[Cut/Eject]** + **[Cleaning]**
   The LCD displays the following message:

   “IPL Start” -> “Data Send”
4. From the PC, send the prepared firmware program to the printer as follows.
   From the DOS prompt, type "copy /a *[filename]* lpt1:" and press Enter.
   Example: **copy /a mpb0362c.ipl lpt1:**
   The data transfer operation takes five to seven minutes, and the ink out plus Pause indicators flash during the transfer.
5. Data transfer is completed, following message appear on the LCD display.

   “FLASH ERASE” -> “FLASH WRITE” -> “PROGRAM LOAD END”
6. Turn the printer off, and then back on.
7. Verify the firmware version according to the directions in step 1.

UPDATING FIRMWARE FROM A MEMORY CARD

1. Make sure “Ready” appears on the LCD. Press the "SelecType" button multiple times until “Printer Status Menu” appears. Then press the "Item" button.
   “Version B0xxxxx” appears. Write down the version number.
2. Turn off the printer.
3. Remove the slot cover (two screws) from the rear of the printer, and insert the prepared firmware card (xxxxxxxx.ROM) into slot CN20. The card is EPSON service tool #F727 Flash memory card.(The top surface of the card faces the outside of the printer.)
4. Turn on the printer.
5. "Update Complete” appears when the firmware update has finished.(Approximately 10 seconds)
6. When start the firmware upload, following message appear on the LCD display.

   “ERASE” -> “Copy0-Copy7” -> “Compare0-Compare7”-> “End”

   Power off is available when "End" message is appeared.
7. Turn off the printer, remove the memory card, and then turn on the printer.
8. Verify the firmware version according to the directions in step 1.

CAUTION

- **Even If the updating processing has discontinued halfway (because of power off /etc.) with both method, it is recoverable with same operation again.**
- **The backup card you use in these steps only works with the Stylus Pro 10000/10000CF; do not attempt to use it with other printers.**

5.2.3 Mechanism Adjustment

This section describes the adjustment procedures necessary after replacing certain parts.Following table showing certain adjustment items.

Table 5-3.

certain parts	Adjustment item	Required tool	Reference
CR Motor	CR steal belt tension	Tension gauge/1054053	page 195
PF Motor	PF timing belt tension	Tension gauge/B747700300	page 197
P-Thick sensor	Self diagnostics/ "Paper Thickness"		page 197
Cutter	Sub Platen position	Adjustment tool/1070178	page 198
Front cover	Cover sensor position		page 199
Slide Motor	Gear backrush		page 199
CR Encoder	Encoder position	Adjustment tool/1070171	page 200
Print Head	Print head slant		page 200
Dot missing detector	Offset adjustment		page 201
Front sensor	Paper Detect position		page 201
Rear sensor	Paper Detect position		page 201
P_Edge sensor	Paper Detect position	Kimoto #300 tracing paper	page 201
paper feeding adjustment			page 203
Cutter pressure	Cutter pressure	Tension Gauge #F712	page 206

Do not loosen the screw on the print head department as shown figure 5-1.

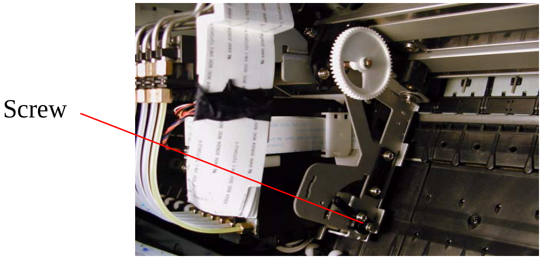


Figure 5-1.

5.2.3.1 CR steal belt tension adjustment

This adjustment is apply to all the work with CR steel belt detachment such as CR motor removal etc. Confirm that is specified tension at the time of CR steel belt installation.

Standard: 100 g+/-10%(The tension of the CR steel belt center)

Adjustment: Push up the center of CR steel belt from under and adjust the tension becomes 100 g+/-10%, that attached to the CR rail.

<Adjustment procedure>

1. Remove the panel assembly and side cover R/L.
2. Connect the panel assembly again.
3. Equality loosen two screws on the pulley shaft.
4. Select the "Test: Sensor" from the diagnostic mode and place the carriage to the center.
5. Ensure the steal belt skew on the pulley during the carriage move with both direction. Turning the adjustment screws on the pulley shaft and eliminate the belt skew.(Adjust the screw that the belt come close side.)
6. Return the carriage to the head capping position and measure the belt tension at center of steal belt. Then adjust the steal tension value to 100 g+/-10% that is touched to the CR rail.
7. Obtain the optimal tension value to turning two screws equality.
8. Move the carriage several times (right and left direction) and confirms the steel belt not to move to outside of the pulley.
9. Apply screw lock to the adjustment screws.
10. Attach the cover which are removed with step 1.

CAUTION ! Avoid any damage to the steal belt.

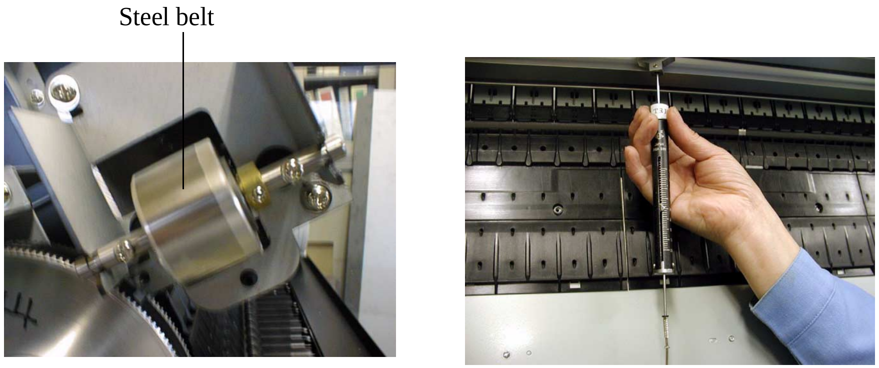


Figure 5-2. CR steel belt tension adjustment

5.2.3.2 PF timing belt tension adjustment

This adjustment is apply to all the work with PF timing belt detachment such as PF motor removal etc., Confirm that is specified tension at the time of PF timing belt installation.

Standard: 3.5 kg+/-10%(The tension toward PF motor fixing bracket)

<Adjustment procedure>

1. Remove the side cover L. (7 screws)
2. Loosen 4 screws on the PF motor fixing bracket.
3. Hook the tension gauge to the PF motor shaft.
4. Hooks the tension gauge and keep the tension within 3.5 kg+/-10% then fix the motor fixing bracket with four screws.
5. Attach the cover which are removed with step 1.

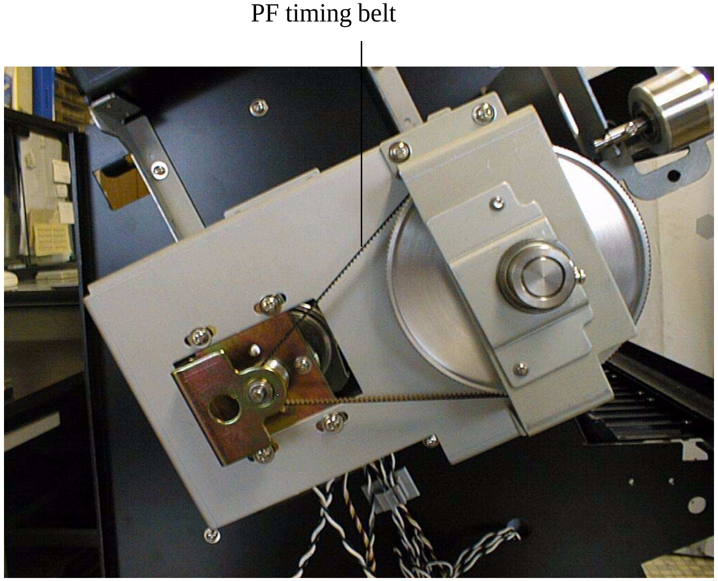


Figure 5-3. PF timing belt tension adjustment

5.2.3.3 P_THICK sensor fixing bracket adjustment

When you change the position of fixing bracket, perform the following adjustment with self-diagnostic function.

Standard: 0.6mm: Thin paper determination /0.7mm:Thick paper determination

<Adjustment procedure>

1. Remove the H top cover (6 screws).
2. Select the "Test: Sensor" from the diagnostic mode and performs "Paper Thickness".
3. Place the long hand side of filler gauge between the right edge of detection roll and sub_platen.Adjust the fixing position which obtains "Thick paper" with 0.7 mm gauge and "thin paper" for 0.6mm.
4. Attach the H top cover which are removed with step 1.

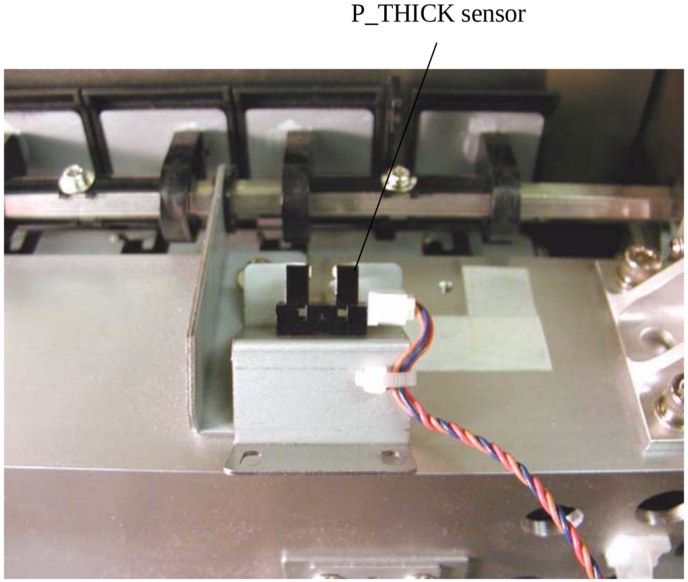


Figure 5-4. P-Thick sensor adjustment

5.2.3.4 Cutter position adjustment

At the power off condition, prepares the A4 size or similar paper and ensure the cut action carried out normally on the side of a starting point side and opposite side.

Gap between the blade and Sub_Platen should be 0.3 to 0.7 mm.

<Adjustment procedure>

1. Select the "Test: Sensor" from the diagnostic mode and release the capping.
2. Open the front cover and loosen the all Sub_Platen fixing screws. Then push it to toward the bottom.
3. At the starting point side, loosen the two of cutter holder screws then mount the L type adjusting tool on the Sub_Platen. Fix the cutter holder position after the adjustment of gap to the Sub_Platen.
4. Attaching the adjustment tool from the right side and perform the adjustment with Sub_Platen fixing screw.(6 Sub_Platens are presented.)
5. Confirm the cutter operation by pressing the cutter cap several times.
6. Shut the front cover and escape from "Test: Sensor" mode. (At this time place the carriage in the middle of CR rail way.)
7. Turn on the printer power and implement and confirm the paper cut operation.

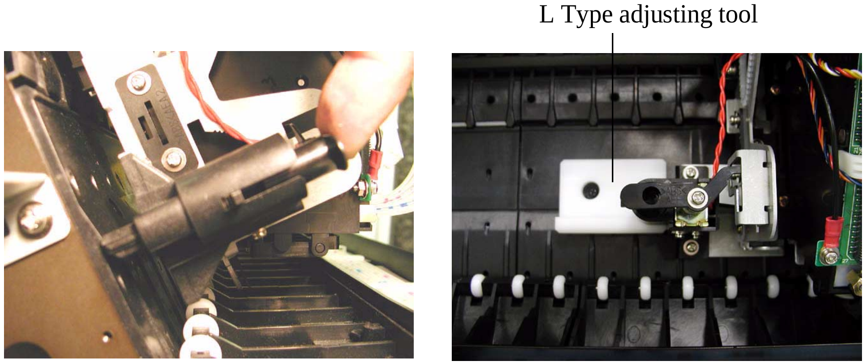


Figure 5-5.

CAUTION

Do not take the up-and-down motion of the cutter in the place other than the Sub_planten area.(It will cause cutter blade damage.)

5.2.3.5 Front cover sensor adjustment

<Standard>

Determines whether a finger enters into the front cover or not.

Cover open: The position whether a finger entered into the front cover or not.

Cover close: The position which a finger entered into the front cover.

<Adjustment procedure>

1. Remove the Panel Assy, side cover L/ R and R inside cover.
2. Select the "Test: Sensor" from the diagnostic mode and choose the "front cover sensor".
3. Loosen the each two fixing screws at the left and right, then move up and down each lever and adjust the sensor position.
4. Attach the cover which are removed with step 1.

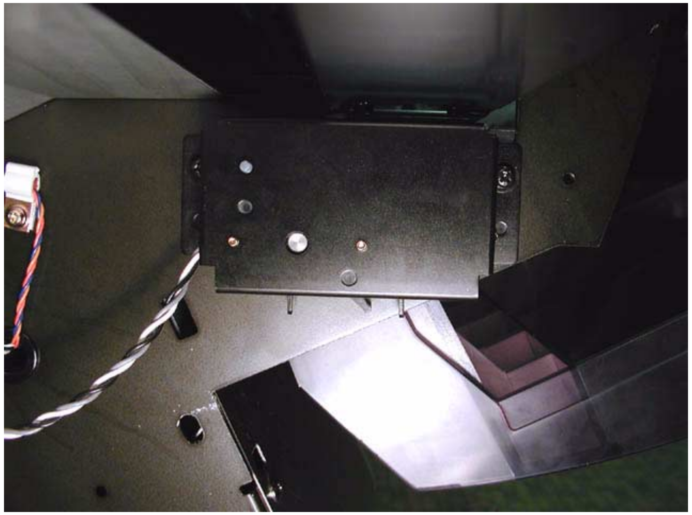


Figure 5-6.

5.2.3.6 Slide idler gear / Slide motor fixing plate adjustment

<Adjustment procedure>

1. Remove the Panel Assy and side cover R.
2. Loosen two screws on the slide motor fixing plate, adjust the gear gutter with PG gear on the carriage and idler gear from top direction.
3. Fixing the screws.
4. Attach the cover which are removed with step 1.

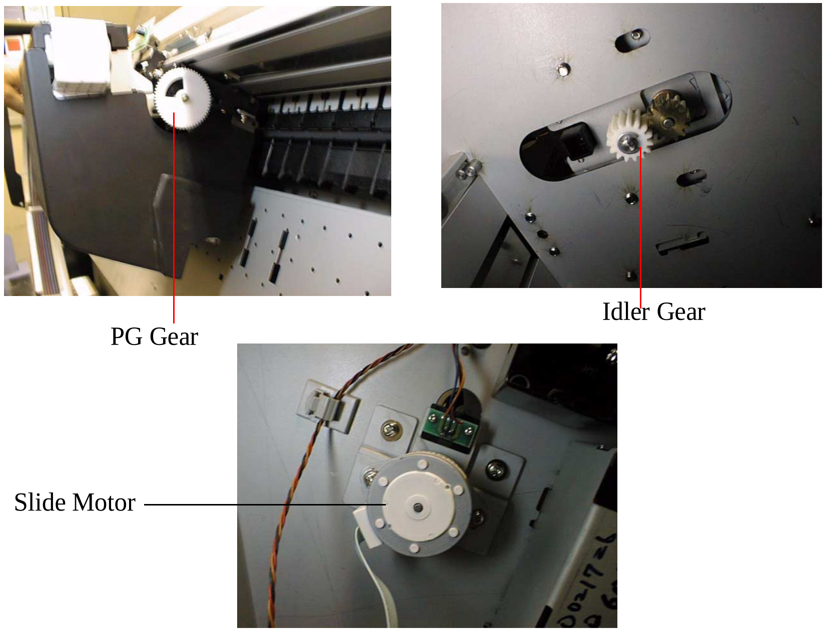


Figure 5-7.

CAUTION

Meshing returns with gear spring even if it thrust in biting condition, and minimize the gear gutter as much as possible furthermore.

5.2.3.7 T fence and CR encoder position adjustment

<Adjustment procedure> Use the CR_ENC setting tool.

1. Remove Panel ASSY and side cover R/L.
2. Remove H top cover.
3. Connect the Panel ASSY again.
4. Select the "Test: Sensor" from the diagnostic mode and place the carriage to the center.
5. Loosen two of CR_ENC sensor fixing screws on the carriage.
6. Mount the CR_ENC setting tool and adjust the position then tighten the screws.
7. Move and place the carriage to the middle of CR guide rail.
8. Escape from the "Test: Sensor" mode.
9. Turn off the printer power after the initialization.
10. Attach the cover which are removed with step 1 and 2.

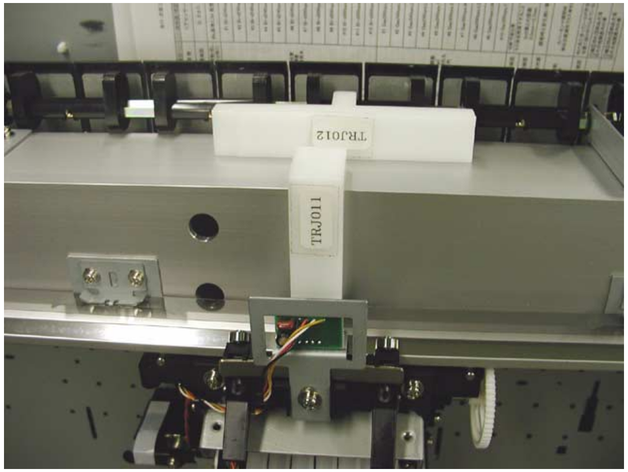


Figure 5-8.

5.2.3.8 Head slant adjustment

Refer to “A13 slant adjustment” on page 239 to “B123 slant adjustment” on page 241 for standard and procedure. Loosen two screws then adjust the head slant with adjustment lever which are shown below. Secure the screws after the adjustment.

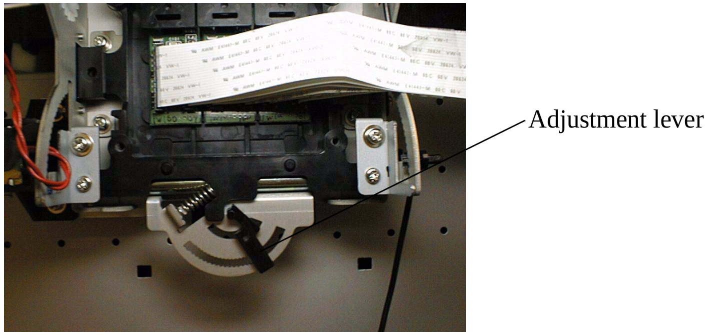


Figure 5-9.

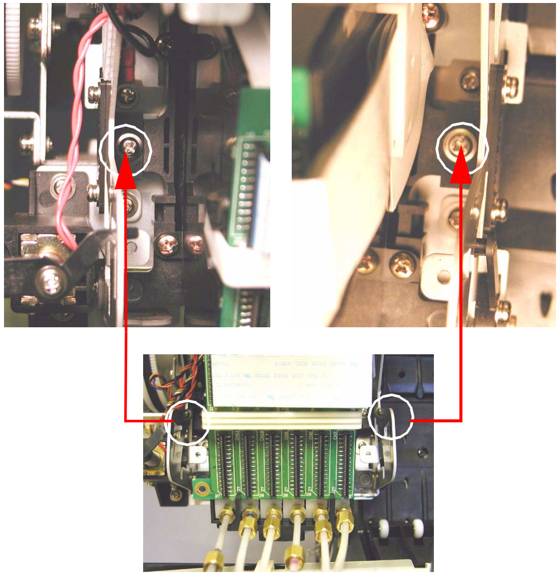


Figure 5-10.

5.2.3.9 Offset adjustment for dot missing detector

Automatically determined offset value after the dot missing detection operation. Refer to the paragraph “Offset adjustment for dot missing detector” on page 201 for details.

5.2.3.10 P_Front/Rear/Edge sensor adjustment

CAUTION

- **Performing these adjustment, set the H top cover and front cover preventing from outside light exposing.**
- **Set the paper set lever after adjustment sheet setting.**

P_FRONT/REAR SENSOR

1. Remove the rear cover.
2. Set the adjustment sheet normally. (Refer to Table 5-4, “Test sheet and Adjustable VR,” on page 201.)
3. Enter the Self-diagnostic mode. (Refer to “Start-up procedure” on page 213.)

Table 5-4. Test sheet and Adjustable VR

Sensor	Adjustment sheet	Rough adjustment	Fine adjustment
P_Front	KIMOTO #300 Tracing Paper	VR2	VR5
P_Rear	KIMOTO #300 Tracing Paper	VR1	VR4
P_Edge	Blight Recycle Paper (XEROX)*	VR3	VR6

*:Blight Recycle Paper (XEROX) is soled in japanese market only.

4. Select "Test"/"Sensor"/"FrontAD" or "Test"/"Sensor"/"Rear" by panel operation. (Refer to “Sensor” on page 217.)
5. Adjusting each VR (Refer to “VR layout” on page 202.) corresponding to the each sensor, the ON-OFF value (Left value) becomes within the adjustment range. (Refer to Table 5-5, “Adjustment Range,” on page 202.)

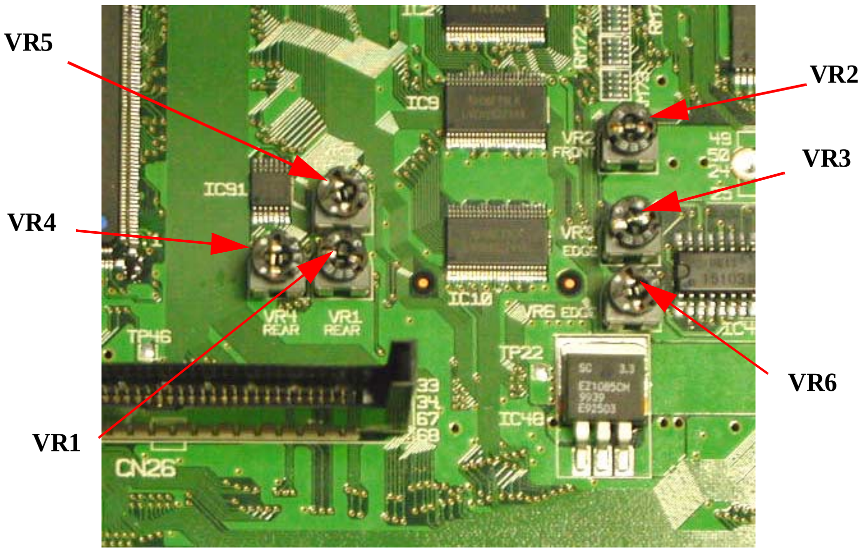


Figure 5-11. VR layout

Table 5-5. Adjustment Range

Sensor	Left (ON-OFF)	Right (ON)
P_Front	040 - 04A	040 - 05E
P_Rear	040 - 04A	040 - 05E
P_Edge	0B0 - 0CF	0C0 - 0CF

6. Confirm the value with sheet set is within the ON value (Right value).

EDGE SENSOR

1. Remove the rear cover.
2. Set the adjustment sheet normally. (Refer to Table 5-4, “Test sheet and Adjustable VR,” on page 201.)
3. Enter the Self-diagnostic mode. (Refer to “Start-up procedure” on page 213.)
4. Select "Test"/"Sensor"/"EdgeAD" by panel operation. (Refer to “Sensor” on page 217.)
5. Take the carriage and move on the paper manually.
6. Adjusting VR 3 or VR6 (Refer to “VR layout” on page 202.) , the ON-value (Right value) becomes within the adjustment range. (Refer to Table 5-5, “Adjustment Range,” on page 202.)
7. Confirm the value with sheet set is within the ON-OFF value (Left value).

5.2.3.11 Paper feeding adjustment

It is necessary adjustment to corresponding to the paper type. Adjustment differs according to the machine type (Stylus Pro 10000/10000CF).

It is necessary adjustment only for Bi_D printing operation.

Preparation: Following instrument and program is required.

- ☐ Print pattern file (file name: "SN_PATTERN") and start-up program.
- ☐ Banding measuring program (file name:" Prnprint").
- ☐ Personal computer that is installed printer driver of Stylus Pro 10000/10000CF.
- ☐ Parallel I/F cable that connects a personal computer and Stylus Pro 10000/10000CF.

Connect the Stylus Pro 10000/10000CF and personal computer as shown in following figure.

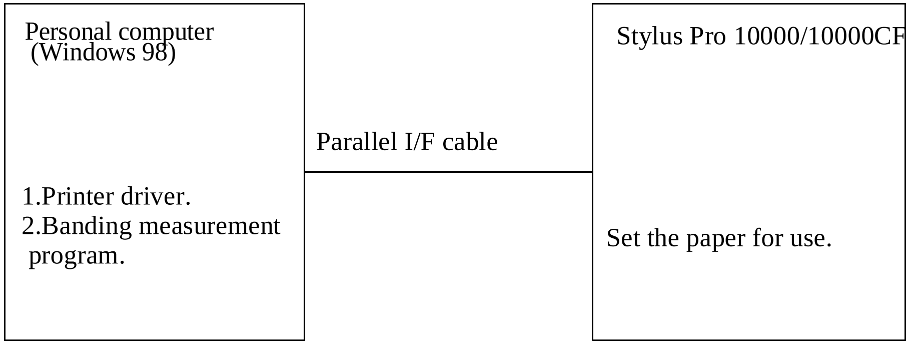


Figure 5-12.

1. Set the paper on the printer.(Paper: banding measurement is required)
2. Turn on the printer power.
3. Turn on the personal computer and execute a banding measurement program("PrnPrint.exe").
4. Select the printer driver (Stylus Pro 10000/10000CF).

.

Table 5-6.

Group	55_75 menu	6d_80 menu
1	55_57_59_5B_5D_	6D_6F_71_73_75
2	59_5F_65_6B_71	71_77_7D_83_89
3	5B_5D_5F_61_63	73_75_77_79_7B
4	61_63_65_67_69	79_7B_7D_7F_81
5	67_69_6B_6D_6F	7F_81_83_85_87
6	6D_6F_71_73_75	85_87_89_8B_8D

5. Send the print file to the printer.
6. Select the group 2 menu shown on theTable 5-6. After the selection, start the printing and following pattern will appear on the paper.

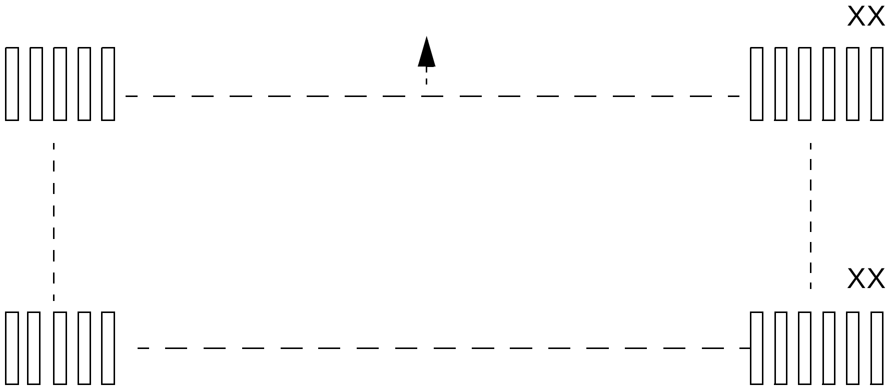


Figure 5-13. paper feeding adjustment pattern

7. Compare the printed pattern and find out the lightest pattern. Read the numerical value (XX) of lightest pattern which printed on the home position side.
8. Selects the group(1,3,4,5,6 file) which contains above numerical value in order to obtain fine measurement. After the selection, start the printing and pattern will appear on the paper.
9. Compare the printed pattern and find out the lightest pattern and read the choose numerical value again.

NOTE: *If the lightest pattern judgement is difficult, regard the opposite side of home position.*

10. Enter the "Maintenance mode " and input the value to the "XX1 to XX4".

    1. Refer to the Table 5-7/Table 5-8 and confirm the panel input value with used paper type.

    2. Select the panel input group(XX1 to XX$) and display the specified paper panel input message as shown following figure.

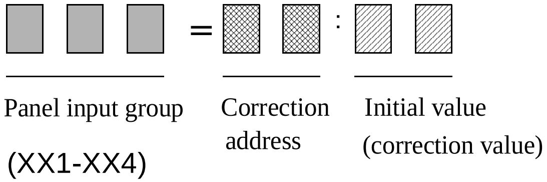


Figure 5-14.

    3. Enter the correction address which are shown on the table 5-6/5-7.(Select the address value by pressing paper feed +/- button.)

    4. Press Cleaning button.

    5. Enter the value to the Initial value.

    6. Press the Enter button.

11. Turn off the printer power.

CAUTION

- **This adjustment is needed in only Bi-D printing.**
- **This adjustment is needed for the paper types on following tables only.**

Table 5-7. Stylus Pro 10000

Paper type	Thickness	Panel input	Address		Initial value
Photo Quality Inkjet Paper	01H(0.1mm)	XX4=	00H	Default	77H
Glossy Film	01H(0.1mm)	XX4=	66H	0.01%	78H
Glossy Photo Paper (except EAI market) Photo Glossy Paper (EAI market)	02H(0.2mm)	XX3=	64H	-0.01%	6AH
Semi Glossy Photo Paper (except EAI market) Semi Glossy paper-Heavy weight	02H(0.2mm)	XX3=	66H	0.01%	6CH
Presentation Matte Paper	02H(0.2mm)	XX3=	68H	0.03%	6EH
Heavy Weight Polyester Banner	02H(0.2mm)	XX3=	83H	0.30%	83H

Table 5-8. Stylus Pro 10000CF

Paper type	Thickness	Panel input	Address		Initial value
Backlight film	01H(0.1mm)	XX2=	00H	Default	6CH
Glossy Film	01H(0.1mm)	XX2=	66H	0.01%	78H
Synthetic Paper	01H(0.1mm)	XX2=	87H	0.34%	BEH
Double Weight Matte Paper	02H(0.2mm)	XX1=	00H	Default	65H
Premium Glossy Photo Paper	02H(0.2mm)	XX1=	5BH	-0.10%	Individual
Premium Semi Glossy Photo Paper	02H(0.2mm)	XX1=	5CH	-0.09%	Individual
Glossy Paper-Photo Weight	02H(0.2mm)	XX1=	6BH	0.06%	6EH
Adhesive Synthetic Paper	02H(0.2mm)	XX1=	81H	0.28%	89H
Heavy Weight Polyester Banner	02H(0.2mm)	XX1=	83H	0.30%	83H
Watercolor Paper-Radiant White	02H(0.2mm)	XX1=	6CH	0.07%	6BH

5.2.3.12 Cutter Pressure Adjustment

This adjustment is needed in case of C362DRV board replacement, Carriage unit replacement, Sub platen unit replacement and Shutter unit. If the paper cutter operation will not be performed correct, you may adjust it.

<Required tool>

☐ Tension Gauge

<Adjustment procedure>

1. Select the "Check: Adjustment" from the diagnostic mode and push Enter switch, then release the capping.
2. Select "Adj.: Cutter" and press Enter switch to enter the cutter pressure adjustment.
3. Press Enter switch in several times until "Pressure=35%" will be appeared on the LCD.
4. Move the carriage unit to the center of most right sub platen.
5. Connect the string between cutter and hook of the tension gauge.

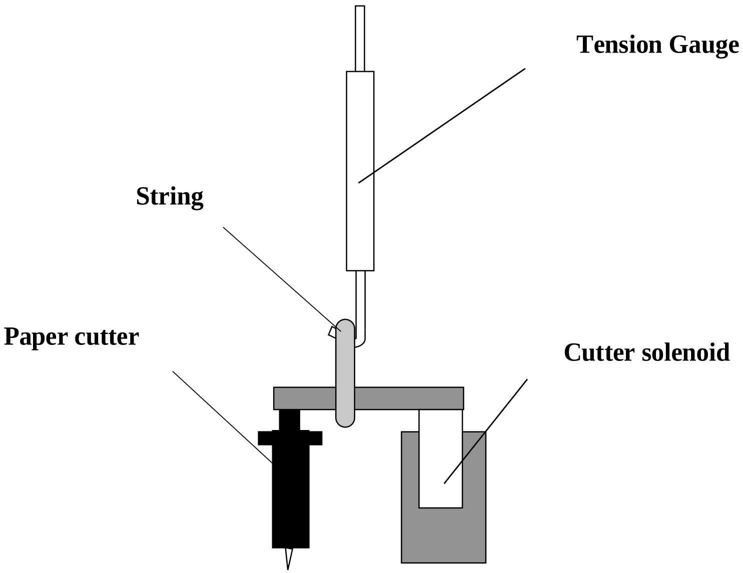


Figure 5-15. Cutter Pressure Adjustment

6. When "Exec. Adj.?" will be displayed on the LCD, press Enter switch, the cutter will be move to downward. At the time, measure the cutter pressure.
7. Pressing Paper feed +/- switches, adjust the pressure to be within 350 and 700gf.
8. Press Enter switch, the cutter move to upward.
9. Move the carriage to the center and most left sub platen, repeat from Step 6 to 8.

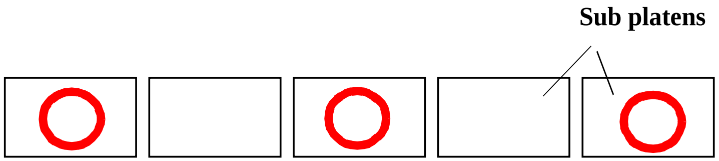


Figure 5-16. Adjustment positions

5.2.4 Program, User data install

<Installation procedure>

1. Insert the user memory card to the defective Main board and turn on the printer power. Confirm the "END" message on the LCD panel then turn off the power.Remove the memory card and replace the Main board.
2. Insert the program memory card to the Main board and turn on the printer power. Confirm the "END" message on the LCD display then turn off the power.Remove the program memory card.
3. Insert the user memory card and press any button except power button within 5 seconds.Confirm the "END" message on the LCD panel then turn off the power.Remove the user memory card.
4. Select the "Test: Sensor" from the diagnostic mode 1 and performs "Paper Front/Paper Rear/Paper Edge".Adjust the specified sensor volume with exclusive paper. Refer the paragraph 5.2.3.10 for details.

<Required tool>

☐ Program memory card

☐ User memory card

CAUTION

Perform the memory card insertion and removal with power off condition.

5.2.5 USB-ID backup

NVRAM(EEPROM) on the C362 Main board record the own USB-ID. USB-ID is different with printer as a serial number.

USD-ID: NE101xxxxxxxxxxxx0 ("X" means 0 to 9,A to Z)

USB-ID copy or write operation is necessary for C362 Main board replacement.Perform this operation with parallel connection of personal computer which has Windows98 and "Adjusting program for PM/MC-1000".

<Required tool>

☐ Adjusting program for PM/MC-1000

☐ Windows98 applicable personal computer

<Preparation>

☐ Start-up the adjusting program and take the operation according to the display guidance.

☐ Select one of following operation according to the previous C362 Main board condition.

Condition: USB-ID read out is available from the previous board.

Copy the USB-ID from previous board and store it to the new one.

Condition: USB-ID read out is impossible from the previous board.

Write the USB-ID to the new one.

5.3 Self-Diagnostics

Self diagnostics has function of mechanism adjustment and also firmware adjustment parameter. The function is incorporated to the firmware and available them with specific button pushing at the power on.

During the normal operation mode, it is impossible to change the mode to self-diagnostic.The self-diagnostic function menu is shown on the Table 5-9, “Self-Diagnostic Mode Controls,” on page 208 and Table 5-10, “Self-Diagnostic Menu Stratum,” on page 208. a

Table 5-9. Self-Diagnostic Mode Controls

Item	Description
Check	Version,Panel,Sensor,Encorder,Fan,History,D/A correction, CSIC, Actuator
Adjustment	Head department adjustment, Sensor position adjustment, Paper feed correction
Cleaning	Four mode of cleaning
Print	Check pattern, adjustment variables
Parameter	Initialize/Update/Display the NVRAM,
Life	CR Motor, PF Motor, Cutter, Head up and down, Carriage lock Lever lock, Cleaning, Print, Shutter, etc.,

Table 5-10. Self-Diagnostic Menu Stratum

Hierarchy1	Hierarchy2	Hierarchy3	Hierarchy4	Hierarchy5
Check	Version	I/F	-	-
		Engine	-	-
		I/F	-	-
		Engine	-	-
		ESCP/3	-	-
		Parameter 1	-	-
		Parameter 2	-	-
		Dips	-	-
		Main Rev.	-	-
		Panel Rev.	-	-
	Panel	key	-	-
		LCD	-	-
		LCD	-	-
	Sensor		-	-
		CR home	-	-
		Cap home	-	-
		Power supply	-	-
		Cover	-	-
		Lever	-	-
		Shutter home	-	-
		Paper thick	-	-
		Head slide	-	-
		Ink Not	-	-
		Ink cover	-	-
		Edge AD	-	-

Table 5-10. Self-Diagnostic Menu Stratum

Check	Sensor	Front AD	-	-
		Rear AD	-	-
		Ink level	-	-
		Head temperature.	-	-
		Driver temperature	-	-
		Laser	-	-
		Roll unit	-	-
	Encorder	CR	-	-
		PF	-	-
	Fan	Suction (All)	-	-
		Suction 1	-	-
		Suction 2	-	-
		Suction 3	-	-
		Mist suction	-	-
		Cooling	-	-
		Head driver	-	-
	History	Maintenance	Waste ink R	-
			Waste ink L	-
			Head wiper 1	-
			Head wiper 2	-
			Head wiper 3	-
			Head rubbing 1	-
			Head rubbing 2	-
			Head rubbing 3	-
			Lever	-

Table 5-10. Self-Diagnostic Menu Stratum

Check	History	Maintenance	Ink cover	-
			CR motor	-
			PF motor	-
			Ink tube	-
			Print count	-
			Cleaning	-
			Shot B	-
			Shot C	-
			Shot M	-
			Shot LC	-
			Shot LM	-
			Shot Y	-
			Cut	-
			Cutter solenoid	-
			Lock solenoid	-
		Error	Error 0	-
		Error	Error 1	-
			Error 2	-
			Error 3	-
			Error 4	-
			Error 5	-
			Error 6	-

Table 5-10. Self-Diagnostic Menu Stratum

Check	D/A correction	K D/A correction	Measure	Va
				Vb
				Vc
				Vd
			Check	Va
				Vb
				Vc
				Vd
		C D/A correction	Measure	Va
				Vb
				Vc
				Vd
			Check	Va
				Vb
				Vc
				Vd
		M D/A correction	Measure	Va
				Vb
				Vc
				Vd
			Check	Va
				Vb
				Vc
				Vd

Table 5-10. Self-Diagnostic Menu Stratum

Check	D/A correction	LC D/A correction	Measure	Va
				Vb
				Vc
				Vd
			Check	Va
		LC D/A correction		Vb
				Vc
				Vd
		LM D/A correction		Va
				Vb
				Vc
				Vd
				Va
				Vb
				Vc
				Vd
		Y D/A correction		Va
				Vb
				Vc
				Vd
				Va
				Vb
				Vc
				Vd
	H signal wave			|

Table 5-10. Self-Diagnostic Menu Stratum

Check	CSIC	K cartridge	CSIC information	
		C cartridge	CSIC information	
		M cartridge	CSIC information	
		LC cartridge	CSIC information	
		LM cartridge	CSIC information	
		Y cartridge	CSIC information	
	Actuator			
	Actuator	Slide motor	-	-
		Shutter motor	-	-
		Cap motor	-	-
		Ink system motor	-	-
		Pomp motor	-	-
		Laser	-	-
		Shutter	Shutter position	-

Table 5-10. Self-Diagnostic Menu Stratum

Check		Cutter	Cutter UP/ DOWN	-
Adjustment	Skew check	-	-	-
	Rank input	QR code	-	-
		Panel	All	Head code input
				Head code input
				Head code input
			Dye ink	Head code input
				Head code input
				Head code input
			Pigment ink	Head code input
				Head code input
				Head code input
	Nozzle check	-	-	-
	Offset adjustment	-	-	-
	Result print	-	-	-
	A13 slant	-	-	-
	A123 slant	-	-	-
	B123 slant	-	-	-

Table 5-10. Self-Diagnostic Menu Stratum

Adjustment	Bi-D adjustment	Bid 240,V1,K	-	-
		Bid 240,V1,C	-	-
		Bid 240,V1,M	-	-
		Bid 240,V1,LC	-	-
		Bid 240,V1,LM	-	-
		Bid 240,V1,Y	-	-
		Bid 300,V2,K	-	-
		Bid 300,V2,C	-	-
		Bid 300,V2,M	-	-
		Bid 300,V2,LC	-	-
		Bid 300,V2,LM	-	-
		Bid 300,V2,Y	-	-
	Head LR adjustment	Gap 240,V1C	-	-
		Gap 240,V1M	-	-
		Gap 240,V1LC	-	-
		Gap 240,V1LM	-	-
		Gap 240,V1Y	-	-
		Gap 300,V2,C	-	-
		Gap 300,V2,M	-	-
		Gap 300,V2,LC	-	-
		Gap 300,V2,LM	-	-
		Gap 300,V2,Y	-	-

Table 5-10. Self-Diagnostic Menu Stratum

Adjustment	Band feed		-	-
	Top and bottom	Top length	-	-
		Bottom length	-	-
		Side margin	-	-
	Rear sensor Pos.		-	-
	Test print	Check pattern	-	-
		Change adjustment	-	-
	Head cleaning		-	-
	Counter clear		-	-
Cleaning	Normal KK0		-	-
	Normal KK1		-	-
	Normal KK2		-	-
	Initial ink charge		-	-
Print	Check pattern		-	-
	Adjustment variable		-	-
Parameter	Initialize	All	-	-
		Capping position	-	-
		PF resolution	-	-
		Serial number	-	-
		head 1 history	-	-
		Head 2 history	-	-
		Head 3 history	-	-
		Wiping history	-	-

Table 5-10. Self-Diagnostic Menu Stratum

Parameter	Initialize	rubbing history	-	-
		Waste ink history	-	-
		CR motor history	-	-
		PF motor history	-	-
		Lever history	-	-
		Cover history	-	-
		Ink cover history	-	-
	Update	Cap position	-	-
		Head rank *1	-	-
		Print position	-	-
		Paper length	-	-
		Mechanical parameter	R flash	-
			L flash	-
			F to H	-
			H to Cut	-
			E to H	-
			R to H	-
			Ink charge flag set	-
			Ink charge flag clear	-
	Display		-	-

Table 5-10. Self-Diagnostic Menu Stratum

Life	CR motor	-	-	-
	PF motor	-	-	-
	CR+PF motor	-	-	-
	Cutter	-	-	-
	Head U/D	-	-	-
	Head lock	-	-	-
	Lever lock	-	-	-
	Cleaning	-	-	-
	Wait printing	-	-	-
	Shutter	-	-	-
	Total reliability	-	-	-
	Check	-	-	-

5.3.1 Start-up procedure

Following Button operation that triggers self-diagnostic function.

1)Power off condition

2)Press and hold the "Paper Feed UP", "Paper Feed, DOWN "and "Cut/Eject" button.

3)Turn on the power.

4)Display the Self-Diagnostics menu.

5)Finish with power down.

5.3.2 Button operation during the Self-Diagnostics

Panel button function is shown in the Table 5-11, “,” on page 214.

Table 5-11.

Normal mode	Self-diagnostics mode
Pause	Previous layer
Select Type	Next menu
Item	Previous menu
Paper feed +	Increment the value
Paper feed -	Decrement the value
Enter	Fix the value
Cleaning	Paper feed & cut (Feed: Press/Cut: Release)

CAUTION

Use the roll paper for self-diagnostics except particular case.
Cut sheet is handle as a roll paper with self-diagnostics.
Use next button for self-diagnostics: Pause/Select Type/Item/Paper feed+/Paper feed-/Enter.

5.3.2.1 Top menu

Top menu sequence is shown below.

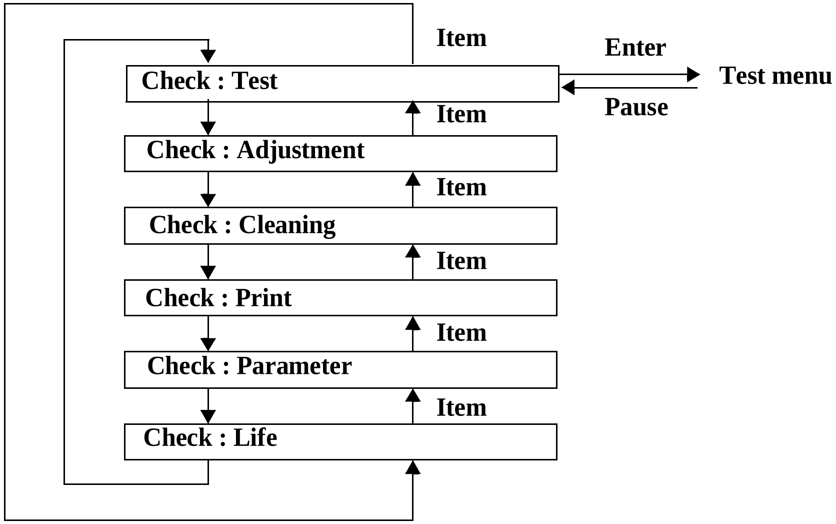

Item
Enter
Test menu
Check : Test
Pause
Item
Check : Adjustment
Item
Check : Cleaning
Item
Check : Print
Item
Check : Parameter
Item
Check : Life

Figure 5-17. Top menu sequence

5.3.3 Test

This function test the circuit board. Table 5-12, “,” on page 215 shown the items.

Table 5-12.

Item	Description
Version	Program, Backup parameter, Dip SW, Board review
Panel	key, LCD,LED
Sensor	CR home, Cap home, Cover, Lever, etc.,
Encorder	CR (carriage), PF (paper feed)
Fan	Paper suction fan, Mist suction fan, Cooling fan, Heat sink fan
Record	Maintenance, Fatal error
D/A correction	Input correction data/Check the corrected voltage
Head signal form	Check the head drive signal
CSIC	Display the CSIC information.
Actuator	Solenoid, Motor

5.3.3.1 Test menu sequence

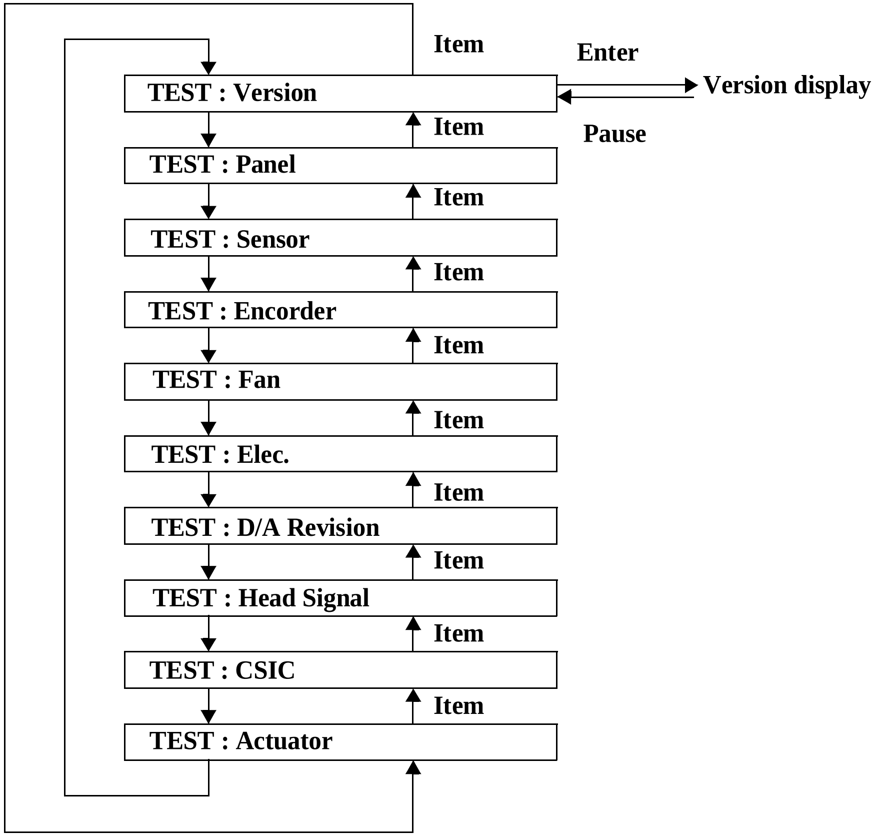

Item
Enter
Version display
Pause
TEST : Version
Item
TEST : Panel
Item
TEST : Sensor
Item
TEST : Encorder
Item
TEST : Fan
Item
TEST : Elec.
Item
TEST : D/A Revision
Item
TEST : Head Signal
Item
TEST : CSIC
Item
TEST : Actuator

Figure 5-18. Test menu sequence

5.3.3.2 Version display

Display the firmware version.(I/F controller, Engine controller)

Ensure the ESC/P3 controller, Backup parameter and Dip SW(on:0,off:1).

Individually display the version on the panel.

Following table showing version display sequence.

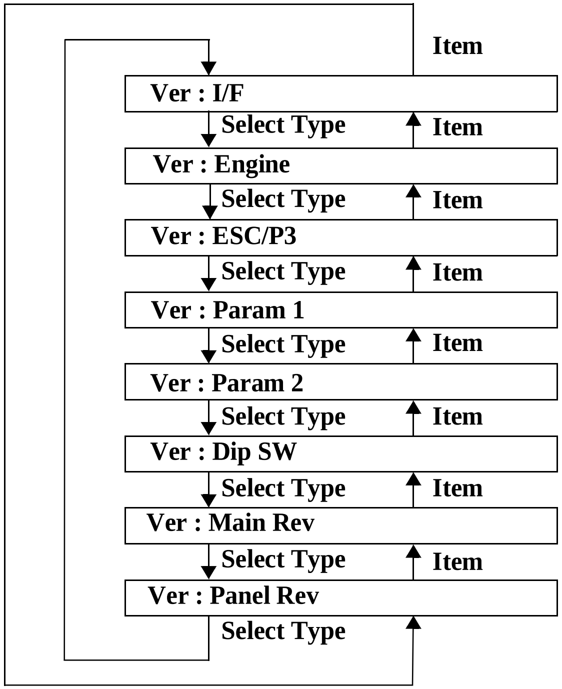

Item
Ver : I/F
Select Type
Item
Ver : Engine
Select Type
Item
Ver : ESC/P3
Select Type
Item
Ver : Param 1
Select Type
Item
Ver : Param 2
Select Type
Item
Ver : Dip SW
Select Type
Item
Ver : Main Rev
Select Type
Item
Ver : Panel Rev
Select Type

Figure 5-19. Version display sequence

※ Additional information for version display.

Display the version as follows;

ddym

NOTE: *dd: Date*

NOTE: *y: Year*

NOTE: *m: Month*

<Example display meaning >

" 0507" means: Year=2000/Month=7/Date=5

If the I/F or ESC/P3 is not installed, each version display becomes "N/A".

5.3.3.3 Panel

Test the key, LCD and LED on the panel.

Following table showing panel test sequence.

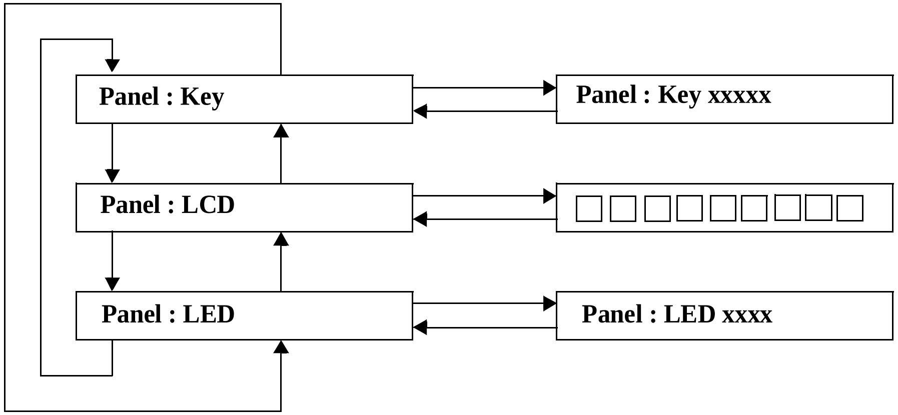

Panel : Key
Panel : Key xxxxx
Panel : LCD
□□□□□□□□□
Panel : LED
Panel : LED xxxx

Figure 5-20. Panel test sequence

- Key name is displayed when you perform the panel key test.
- The panel key test is ended when you push the [Pause] key twice.
- LED name is displayed on LCD when you perform the LED check.

Display sequence is Operate-Pause-K-C-M-LC-LM-Y-Paper Out-Auto cut-Sheet

5.3.3.4 Sensor

Display the sensor condition. Table 5-19 showing sensor test menu sequence. When entering the sensor menu, place the carriage to the home position and perform the carriage lock.

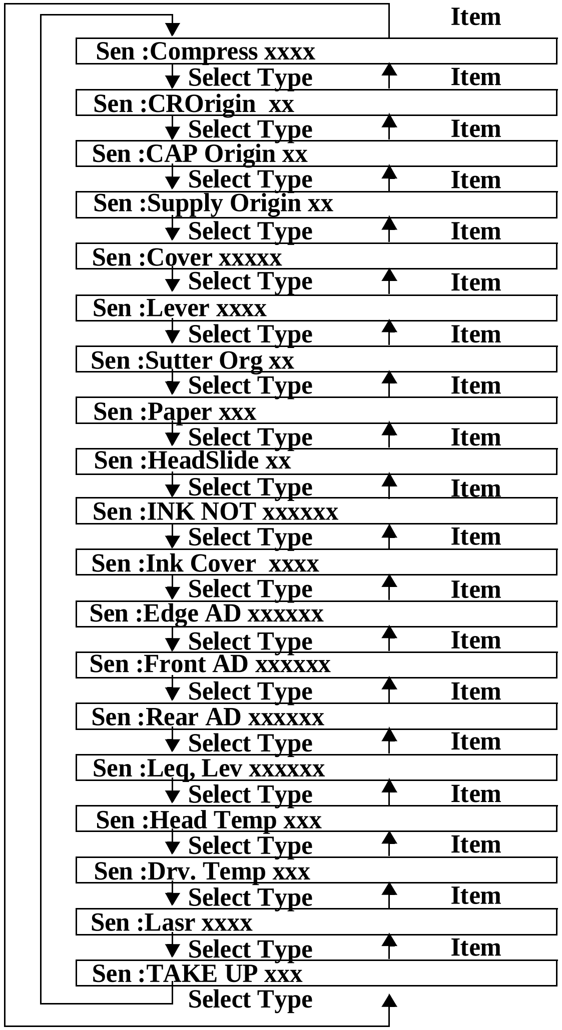

Item
Sen :Compress xxxx
Select Type
Item
Sen :CROrigin xx
Select Type
Item
Sen :CAP Origin xx
Select Type
Item
Sen :Supply Origin xx
Select Type
Item
Sen :Cover xxxxx
Select Type
Item
Sen :Lever xxxx
Select Type
Item
Sen :Sutter Org xx
Select Type
Item
Sen :Paper xxx
Select Type
Item
Sen :HeadSlide xx
Select Type
Item
Sen :INK NOT xxxxxx
Select Type
Item
Sen :Ink Cover xxxx
Select Type
Item
Sen :Edge AD xxxxxx
Select Type
Item
Sen :Front AD xxxxxx
Select Type
Item
Sen :Rear AD xxxxxx
Select Type
Item
Sen :Leq, Lev xxxxxx
Select Type
Item
Sen :Head Temp xxx
Select Type
Item
Sen :Drv. Temp xxx
Select Type
Item
Sen :Lasr xxxx
Select Type
Item
Sen :TAKE UP xxx
Select Type

Figure 5-21. Sensor menu sequence

- ☐ "INK NOT xxxxxx" : Display of "xxxxxx" means ink cartridge name with symbolic code.
- ☐ "EdgeAD xxxyyy"/"FrontAD xxxyyy/"RearAD xxxyyy" :

: Display of "xxx" means difference from ON minus Off, "yyy" means ON level.

Following figure showing the relation of sensor display and sub tank ink amount.

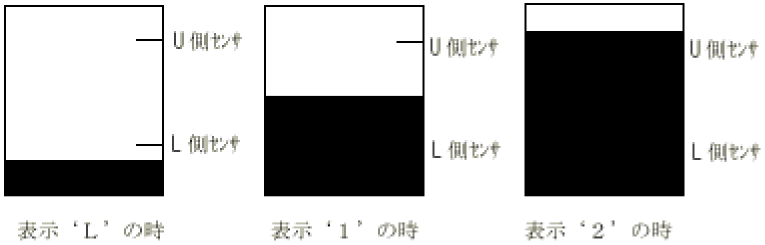

U 側ｾﾝｻ
L 側ｾﾝｻ
表示‘L’の時
U 側ｾﾝｻ
L 側ｾﾝｻ
表示‘1’の時
U 側ｾﾝｻ
L 側ｾﾝｻ
表示‘2’の時

Figure 5-22.

- ☐ "F" will display when the overflow condition is presented.
- ☐ "Laser xxxx" :Display of "xxx" means AGC thresh hold value. If the value is less than "2208" you need to replace the dot missing detector unit.

5.3.3.5 Encoder

Display the CR and PF encoder value.

Following figure showing the encoder test sequence.

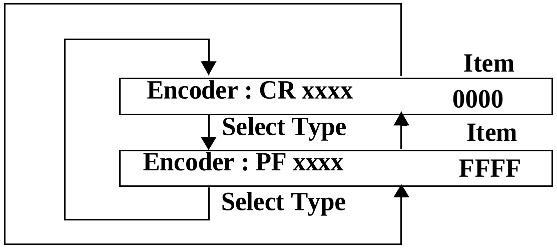

Item
Encoder : CR xxxx
0000
Select Type
Item
Encoder : PF xxxx
FFFF
Select Type

Figure 5-23.

Display unit is the number of encoded pulse.

5.3.3.6 Fan

Test the each fan operation.

Following figure showing Fan test sequence.

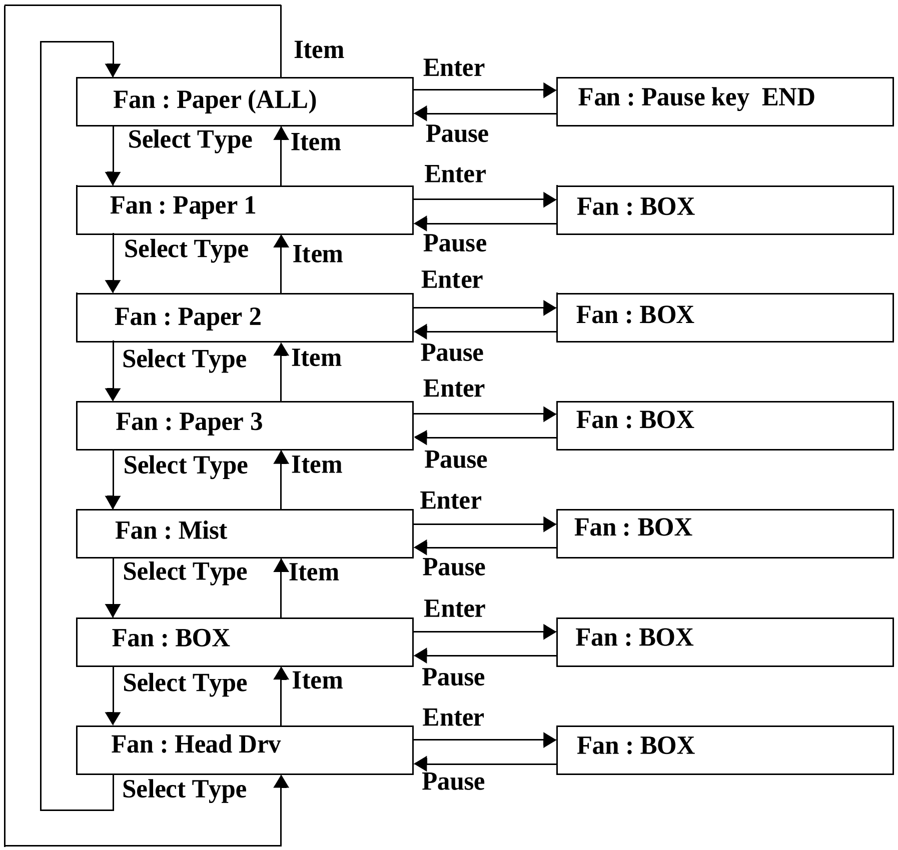

Item
Enter
Fan : Paper (ALL)
Fan : Pause key END
Select Type
Item
Pause
Enter
Fan : Paper 1
Fan : BOX
Select Type
Item
Pause
Enter
Fan : Paper 2
Fan : BOX
Select Type
Item
Pause
Enter
Fan : Paper 3
Fan : BOX
Select Type
Item
Pause
Enter
Fan : Mist
Fan : BOX
Select Type
Item
Pause
Enter
Fan : BOX
Fan : BOX
Select Type
Item
Pause
Enter
Fan : Head Drv
Fan : BOX
Select Type
Pause

Figure 5-24. Fan test sequence

5.3.3.7 Encode

Display the maintenance and fatal errors.

Following figure showing record menu.

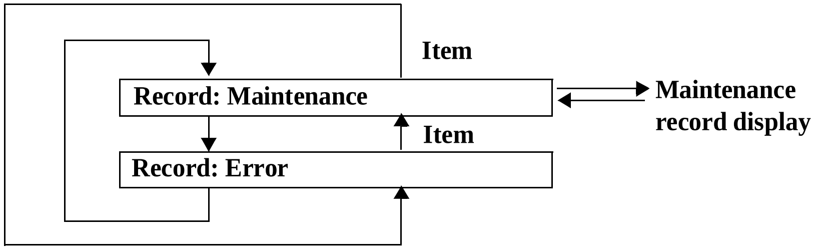
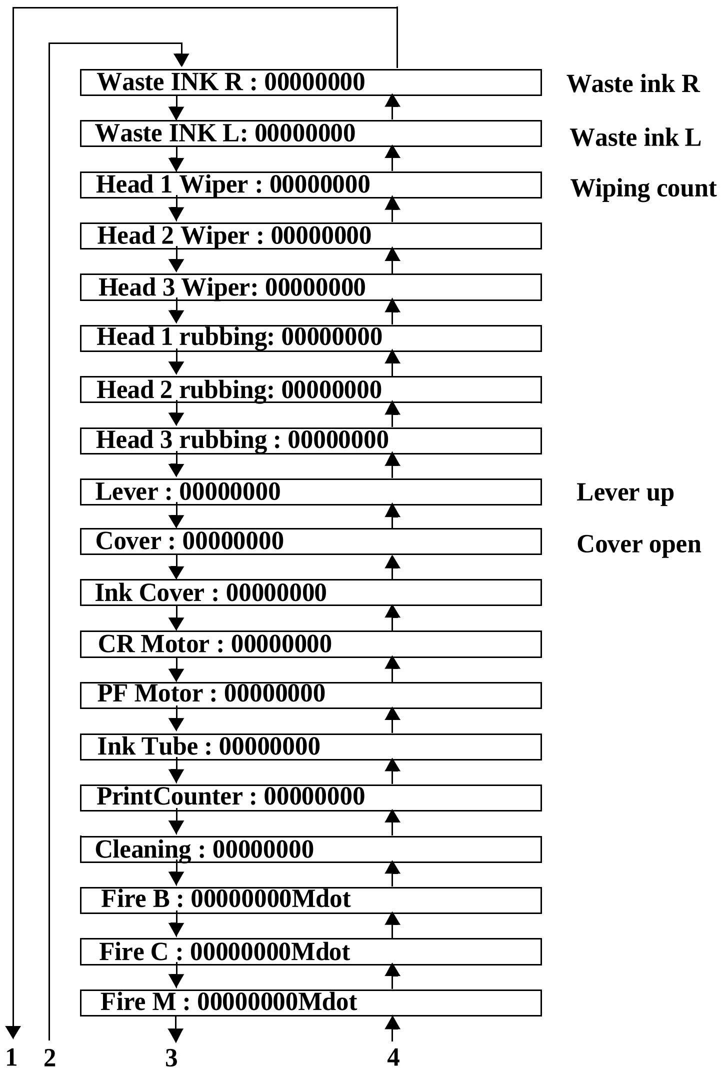

Item
Record: Maintenance
Maintenance record display
Item
Record: Error

Figure 5-25. Record menu sequence

(1) Maintenance record

Following figure showing maintenance record menu.


Waste INK R : 00000000
Waste ink R
Waste INK L: 00000000
Waste ink L
Head 1 Wiper : 00000000
Wiping count
Head 2 Wiper : 00000000
Head 3 Wiper: 00000000
Head 1 rubbing: 00000000
Head 2 rubbing: 00000000
Head 3 rubbing : 00000000
Lever : 00000000
Lever up
Cover : 00000000
Cover open
Ink Cover : 00000000
CR Motor : 00000000
PF Motor : 00000000
Ink Tube : 00000000
PrintCounter : 00000000
Cleaning : 00000000
Fire B : 00000000Mdot
Fire C : 00000000Mdot
Fire M : 00000000Mdot
1
2
3
4

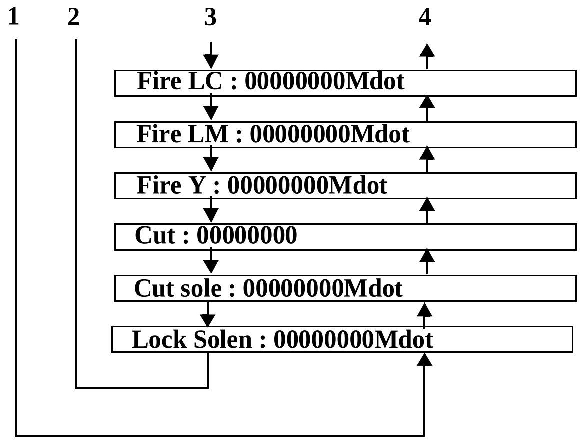

1
2
3
4
Fire LC : 00000000Mdot
Fire LM : 00000000Mdot
Fire Y : 00000000Mdot
Cut : 00000000
Cut sole : 00000000Mdot
Lock Solen : 00000000Mdot

Figure 5-26. Maintenance record menu sequence

(2)Error record

Display the error record.

CPU error is not include for critical error.

Up to seven record are available.

Following figure showing error record menu sequence.

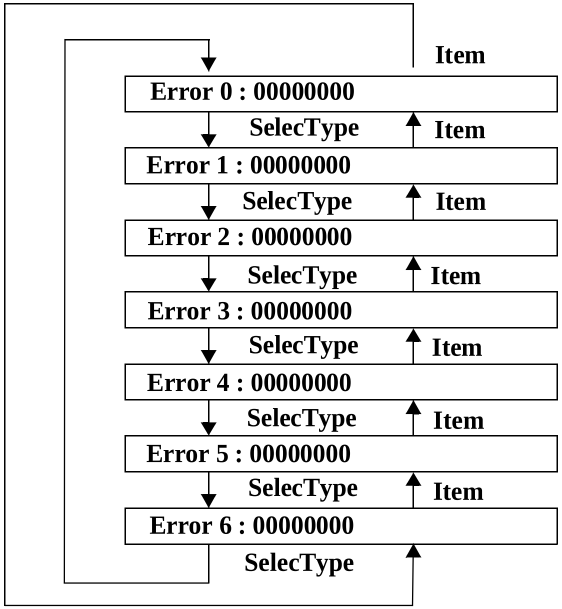

Item
Error 0 : 00000000
SelecType
Item
Error 1 : 00000000
SelecType
Item
Error 2 : 00000000
SelecType
Item
Error 3 : 00000000
SelecType
Item
Error 4 : 00000000
SelecType
Item
Error 5 : 00000000
SelecType
Item
Error 6 : 00000000
SelecType

Figure 5-27.

5.3.3.8 D/A correction

Correct the head drive bias.

Correction value and drive bias check is available.

Correction input and check are perform by each color.

Following figure showing D/A correction menu sequence.

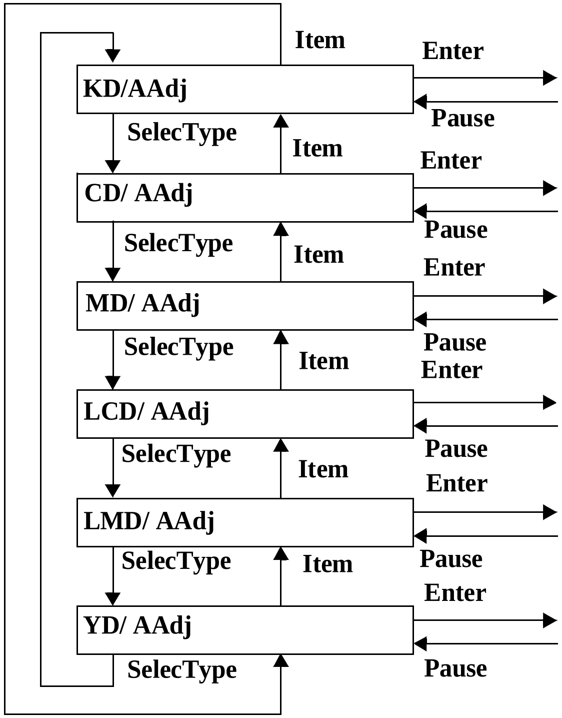

Item
Enter
KD/AAdj
Pause
SelecType
Item
Enter
CD/ AAdj
Pause
SelecType
Item
Enter
MD/ AAdj
Pause
SelecType
Item
Enter
LCD/ AAdj
Pause
SelecType
Item
Enter
LMD/ AAdj
Pause
SelecType
Item
Enter
YD/ AAdj
Pause
SelecType

Figure 5-28. D/A correction menu sequence

1. Voltage measurement /Check

Select the measurement or check the voltage.

Following figure showing menu sequence.

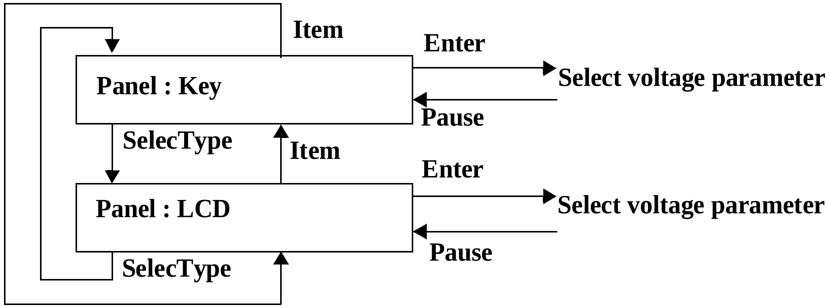

Item
Enter
Panel : Key
Select voltage parameter
Pause
SelecType
Item
Enter
Panel : LCD
Select voltage parameter
Pause
SelecType

Figure 5-29.

2. Parameter selection from measurement result.

Select the voltage parameter of Va - Vd.

Following figure showing menu sequence.

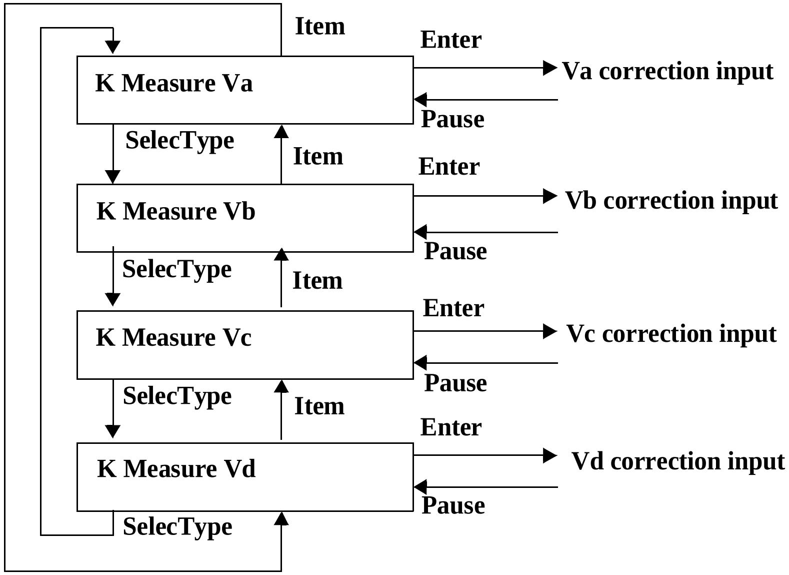
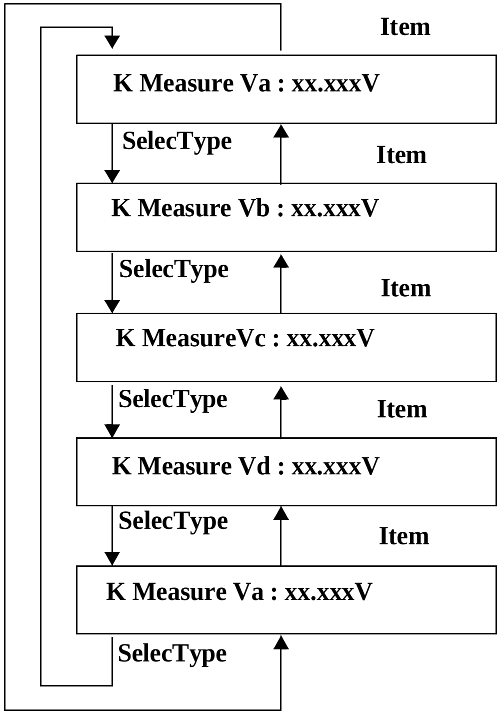

Item
Enter
K Measure Va
Va correction input
Pause
SelecType
Item
Enter
K Measure Vb
Vb correction input
Pause
SelecType
Item
Enter
K Measure Vc
Vc correction input
Pause
SelecType
Item
Enter
K Measure Vd
Vd correction input
Pause
SelecType

Figure 5-30.

3. Correction data input screen. Screen for the "Va" to" Vd" input.

Following figure showing screen menu sequence.



Item
K Measure Va : xx.xxxV
SelecType
Item
K Measure Vb : xx.xxxV
SelecType
Item
K MeasureVc : xx.xxxV
SelecType
Item
K Measure Vd : xx.xxxV
SelecType
Item
K Measure Va : xx.xxxV
SelecType

Select the value with Paper Feed +/- key

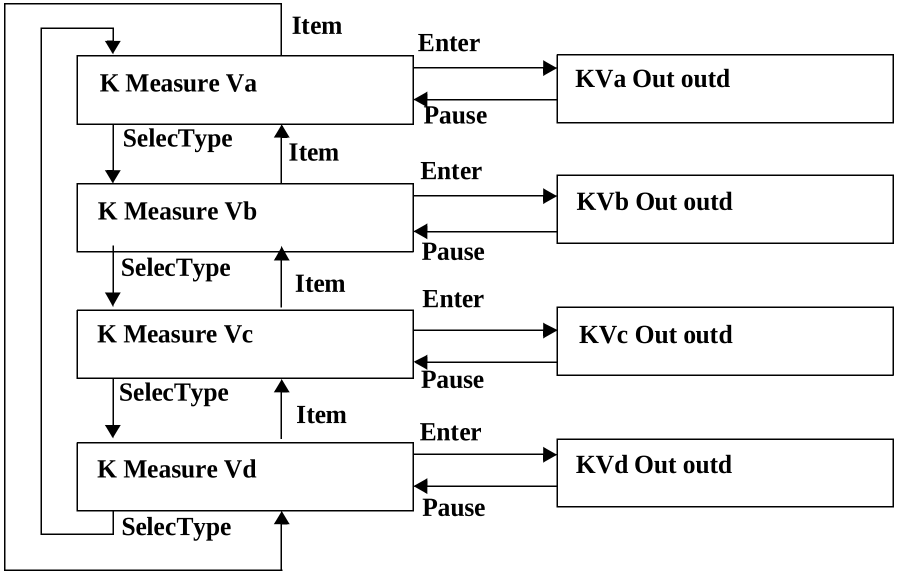
Figure 5-31.

- ☐ Cursor is displayed to the column that is inputting at present.
- ☐ When [SelecType] key is pushed the cursor migrates to the right.
- ☐ When [Item] key is pushed the cursor migrates to the left.
- ☐ When the [Enter] key is pushed display moves to the menu next to 1 hierarchy.
- ☐ When the [Pause] key is pushed the display returns to 1 hierarchy.
- ☐ When the [Enter] key is pushed during the correction value input of [Vd], D/A correction value of the color settles and display moves to [K measure Va] of 1 hierarchy.

4. Selection of the parameter

Select the voltage parameter for "Va" to" Vd".

Following figure showing parameter menu sequence.



Item
Enter
K Measure Va
KVa Out outd
Pause
SelecType
Item
Enter
K Measure Vb
KVb Out outd
Pause
SelecType
Item
Enter
K Measure Vc
KVc Out outd
Pause
SelecType
Item
Enter
K Measure Vd
KVd Out outd
Pause
SelecType

Figure 5-32.

5.3.3.9 Head signal shape

Output the miscellaneous signals.

The function is used for the factory evaluation.

Following figure showing head signal shape sequence.

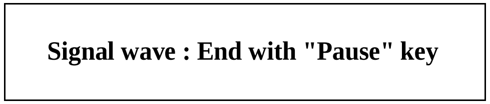

Signal wave : End with "Pause" key

Figure 5-33.

5.3.3.10 CSIC information display

Following figure showing cartridge selection sequence.

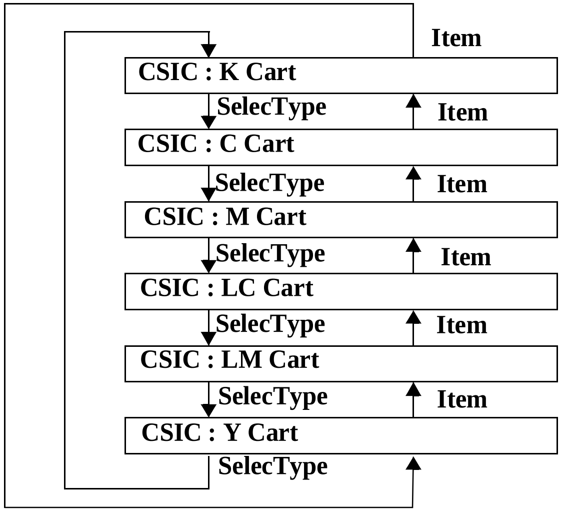
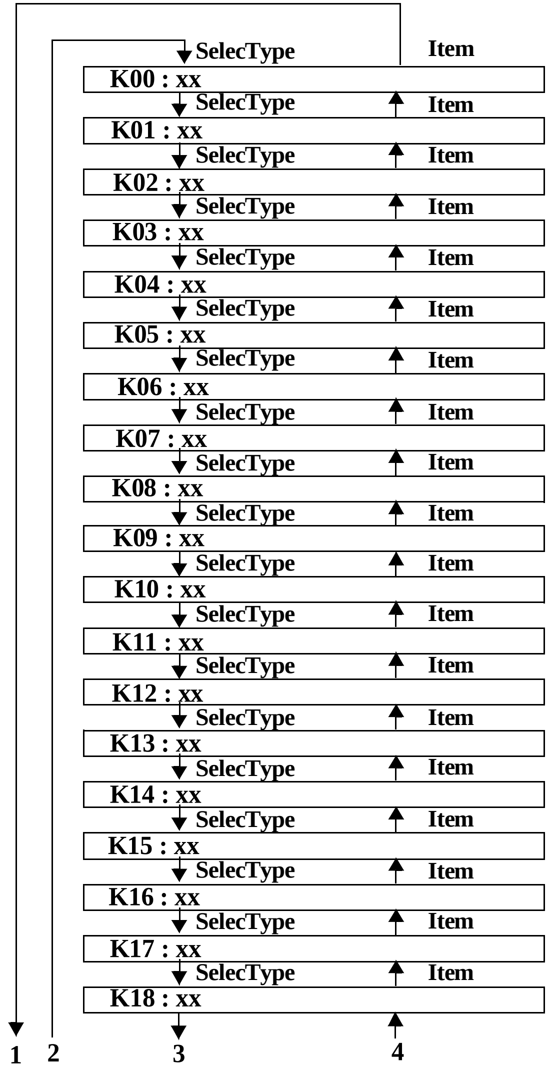

Item
CSIC : K Cart
SelecType
Item
CSIC : C Cart
SelecType
Item
CSIC : M Cart
SelecType
Item
CSIC : LC Cart
SelecType
Item
CSIC : LM Cart
SelecType
Item
CSIC : Y Cart
SelecType

Figure 5-34. Cartridge selection sequence

1. CSIC information

Display the CSIC internal information.

Following figure showing CSIC menu sequence.


SelecType
Item
K00 : xx
SelecType
Item
K01 : xx
SelecType
Item
K02 : xx
SelecType
Item
K03 : xx
SelecType
Item
K04 : xx
SelecType
Item
K05 : xx
SelecType
Item
K06 : xx
SelecType
Item
K07 : xx
SelecType
Item
K08 : xx
SelecType
Item
K09 : xx
SelecType
Item
K10 : xx
SelecType
Item
K11 : xx
SelecType
Item
K12 : xx
SelecType
Item
K13 : xx
SelecType
Item
K14 : xx
SelecType
Item
K15 : xx
SelecType
Item
K16 : xx
SelecType
Item
K17 : xx
SelecType
Item
K18 : xx
1
2
3
4

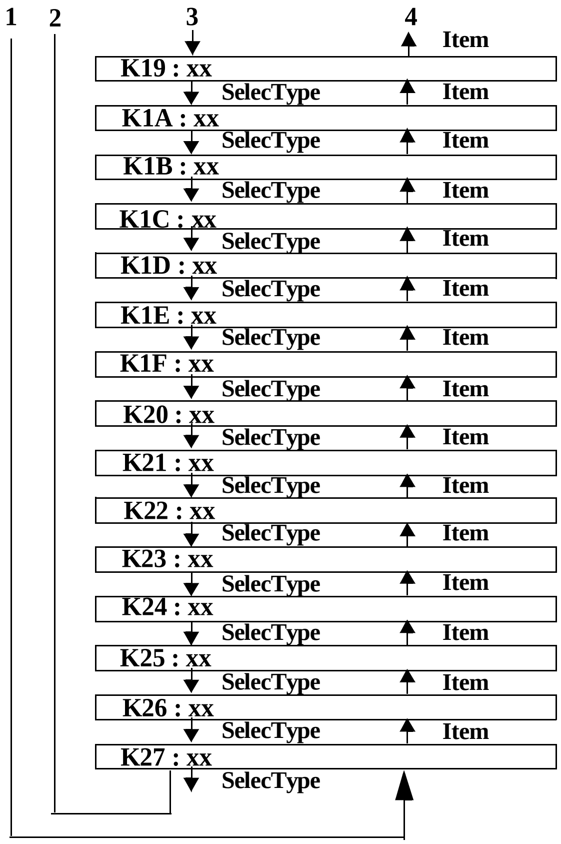

1
2
3
4
Item
K19 : xx
SelecType
Item
K1A : xx
SelecType
Item
K1B : xx
SelecType
Item
K1C : xx
SelecType
Item
K1D : xx
SelecType
Item
K1E : xx
SelecType
Item
K1F : xx
SelecType
Item
K20 : xx
SelecType
Item
K21 : xx
SelecType
Item
K22 : xx
SelecType
Item
K23 : xx
SelecType
Item
K24 : xx
SelecType
Item
K25 : xx
SelecType
Item
K26 : xx
SelecType
Item
K27 : xx
SelecType

Figure 5-35.

5.3.3.11 Actuator

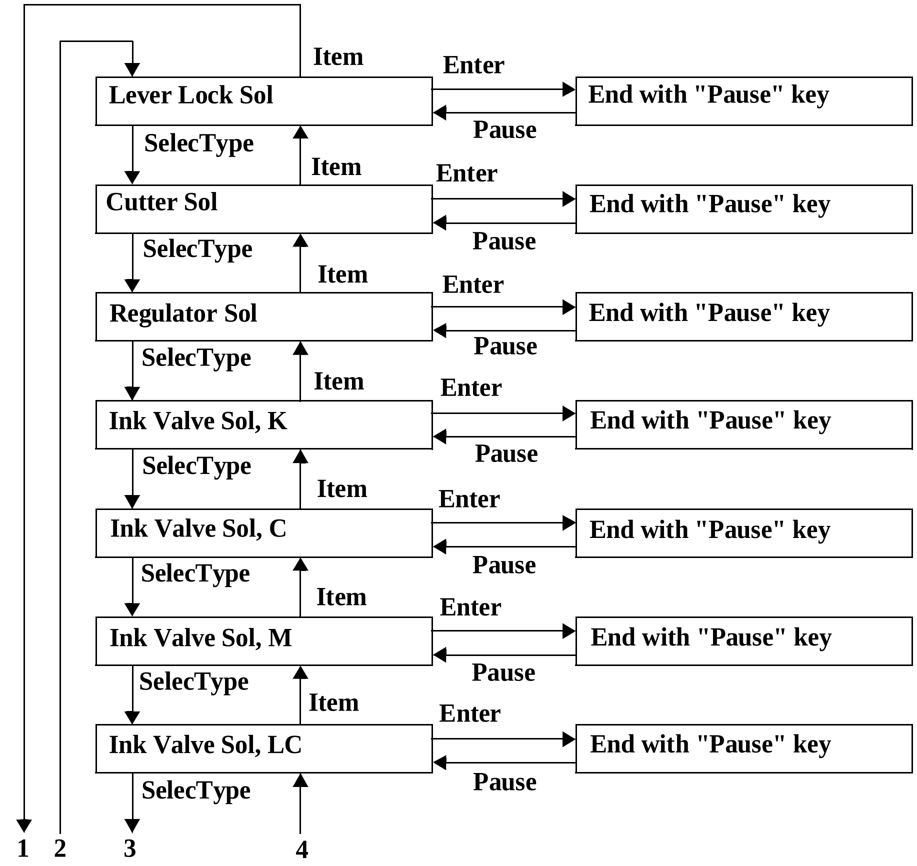
Move the various solenoid.

Pay for the attention to the "Ink valve Solenoid" test.

☐ Pump air is not compressed: The ink will flow to the cartridge directions.

☐ Pump air is compressed: The ink will flow to the sub tank directions

Following figure showing Actuator menu sequence.


Item
Enter
Lever Lock Sol
End with "Pause" key
Pause
SelecType
Item
Enter
Cutter Sol
End with "Pause" key
Pause
SelecType
Item
Enter
Regulator Sol
End with "Pause" key
Pause
SelecType
Item
Enter
Ink Valve Sol, K
End with "Pause" key
Pause
SelecType
Item
Enter
Ink Valve Sol, C
End with "Pause" key
Pause
SelecType
Item
Enter
Ink Valve Sol, M
End with "Pause" key
Pause
SelecType
Item
Enter
Ink Valve Sol, LC
End with "Pause" key
Pause
SelecType
1
2
3
4

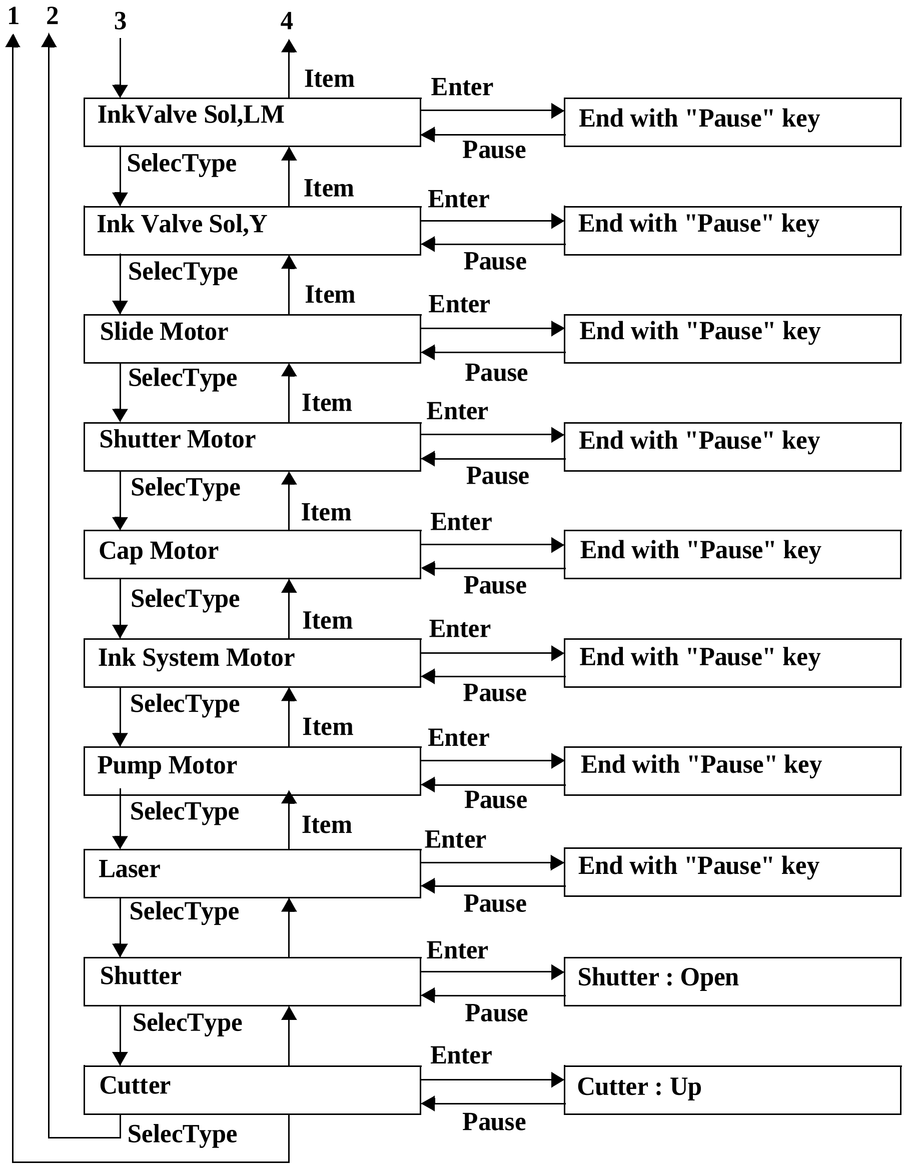

1
2
3
4
Item
Enter
InkValve Sol,LM
End with "Pause" key
Pause
SelecType
Item
Enter
Ink Valve Sol,Y
End with "Pause" key
Pause
SelecType
Item
Enter
Slide Motor
End with "Pause" key
Pause
SelecType
Item
Enter
Shutter Motor
End with "Pause" key
Pause
SelecType
Item
Enter
Cap Motor
End with "Pause" key
Pause
SelecType
Item
Enter
Ink System Motor
End with "Pause" key
Pause
SelecType
Item
Enter
Pump Motor
End with "Pause" key
Pause
SelecType
Item
Enter
Laser
End with "Pause" key
Pause
SelecType
Enter
Shutter
Shutter : Open
Pause
SelecType
Enter
Cutter
Cutter : Up
Pause
SelecType

Figure 5-36.

1. Shutter

Change the shutter position with panel operation.

Following figure showing shutter menu.

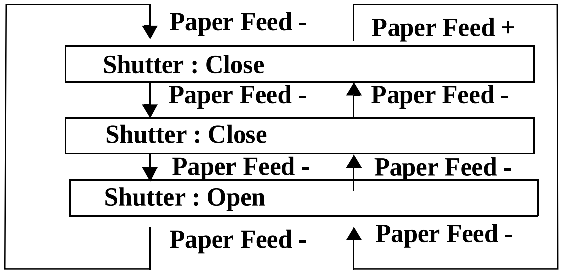

Paper Feed -
Paper Feed +
Shutter : Close
Paper Feed -
Paper Feed -
Shutter : Close
Paper Feed -
Paper Feed -
Shutter : Open
Paper Feed -
Paper Feed -

Figure 5-37.

2. Cutter

Up and Down the cutter with panel operation.

Following figure showing cutter menu.

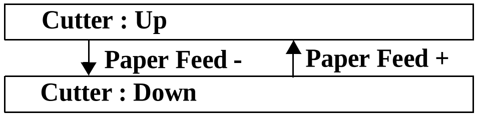

Cutter : Up
Paper Feed -
Paper Feed +
Cutter : Down

Figure 5-38.

☐ "Paper feed -" key is inactivated during the "Cutter Up "display.

☐ "Paper feed+-" key is inactivated during the "Cutter Down "display.

5.3.4 Adjustment

Perform the mechanical adjustment (Head slant) and firmware parameter adjustment.

All of adjustment items are adjusted at the factory. Head cleaning with wash I/C cartridge, head rank input, ink charge and print position adjustment are necessary when print head is replaced. CW and Bi-D adjustment is required when the miss alignment occur with print position, because of platen height change. paper feeding adjustment (Refer to described on paragraph 5.2.3.11) is necessary when the paper feed differences.

Following table showing adjustment items.

Capping and flashing position adjustment is not required even if the related adjustment menu appear during the adjustment.

Table 5-13.

Item	Description
Skew adjustment	Perform the paper feeding and detect the skew with sensor.
Head rank input	Input the characteristic of print head.(Data is indicated on the head.)perform the ink charge after the input.
Head nozzle check	Ensure the condition with test print.
Dot missing offset adjustment	Input the offset value.
Dot missing detector	Print the result of dot missing.
A13 slant adjustment	Check the head slant with sample.(Mechanical adjustment)
A123 slant adjustment	Check the head slant with sample.(Mechanical adjustment)
B123 slant adjustment	Check the head slant with sample.(Mechanical adjustment)
Bi-D adjustment	Adjust the position with Bi-D printing.
Head LR adjustment	Adjust the position with Uni-D printing.
paper feeding adjustment	Correct the paper feed according to the paper type.
Top and bottom adjustment	Set the top and bottom margin.
Rear sensor position	Adjust the position by using cut sheet.
Print test pattern	Head nozzle, adjustment pattern
Print head Wash	Use wash I/C cartridge
Counter clear	Clear the various software counter

5.3.4.1 Adjustment menu

Following figure showing adjustment menu sequence.

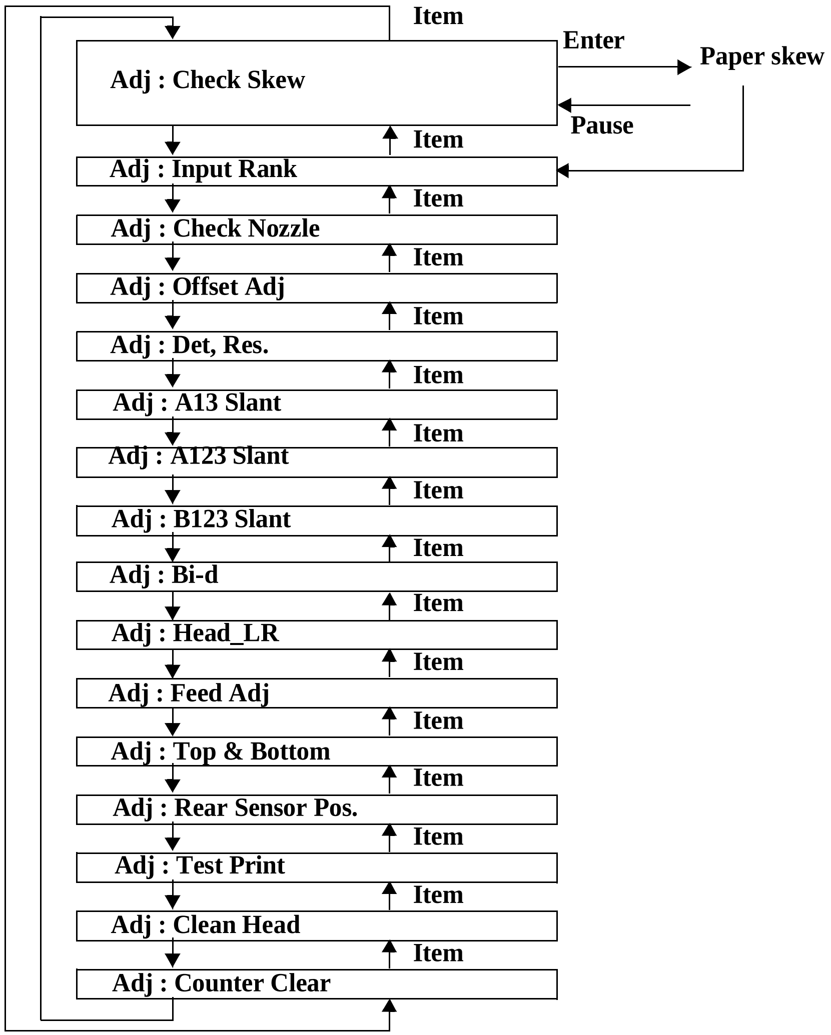

Item
Enter
Paper skew
Adj : Check Skew
Pause
Item
Adj : Input Rank
Item
Adj : Check Nozzle
Item
Adj : Offset Adj
Item
Adj : Det, Res.
Item
Adj : A13 Slant
Item
Adj : A123 Slant
Item
Adj : B123 Slant
Item
Adj : Bi-d
Item
Adj : Head_LR
Item
Adj : Feed Adj
Item
Adj : Top & Bottom
Item
Adj : Rear Sensor Pos.
Item
Adj : Test Print
Item
Adj : Clean Head
Item
Adj : Counter Clear

Figure 5-39.

5.3.4.2 Paper Skew

Feed the paper and check the paper edge position with the P_Edge sensor, then compare the difference between start position and stopped position.The result is displayed on the LCD screen.

Finish the skew test by depressing "Pause" key at standby state.

Following figure showing skew menu sequence.

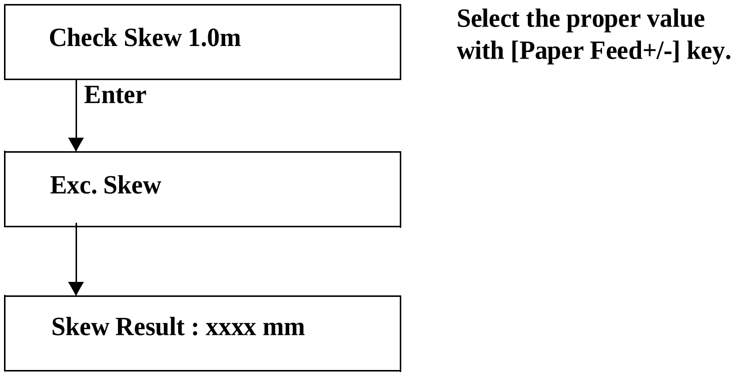

Check Skew 1.0m
Select the proper value
with [Paper Feed+/-] key.
Enter
Exc. Skew
Skew Result : xxxx mm

Figure 5-40.

- ☐ The skew value is determined at the first edge detection at left side of paper.
- ☐ Pull the paper release lever toward up when the "Paper Out" LED indicator is light or blinking.(Above LED indication means paper detection error.)
- ☐ Panel key operation is as follows:

  Enter: Go to the "Adj: Input Rank" menu.

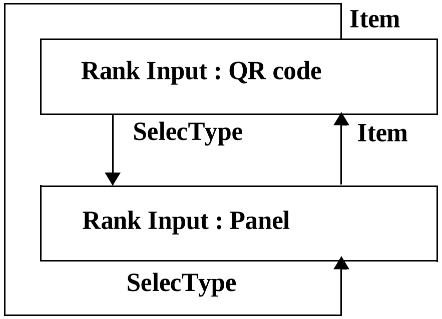
  Pause: Go to the "Adj: Check Skew"

  All keys are inactive during the skew check operation.

5.3.4.3 Head Rank input

Head rank is the characteristic of the head and each head has own value (QR code). This value is used for determination of head drive voltage and temperature correction in order to obtain a fine print quality.

Following figure showing input menu.


Item
Rank Input : QR code
SelecType
Item
Rank Input : Panel
SelecType

Press the [Enter] key to QR code receive mode on line.

Press the [Enter] key to code input mode with the panel.

Figure 5-41.

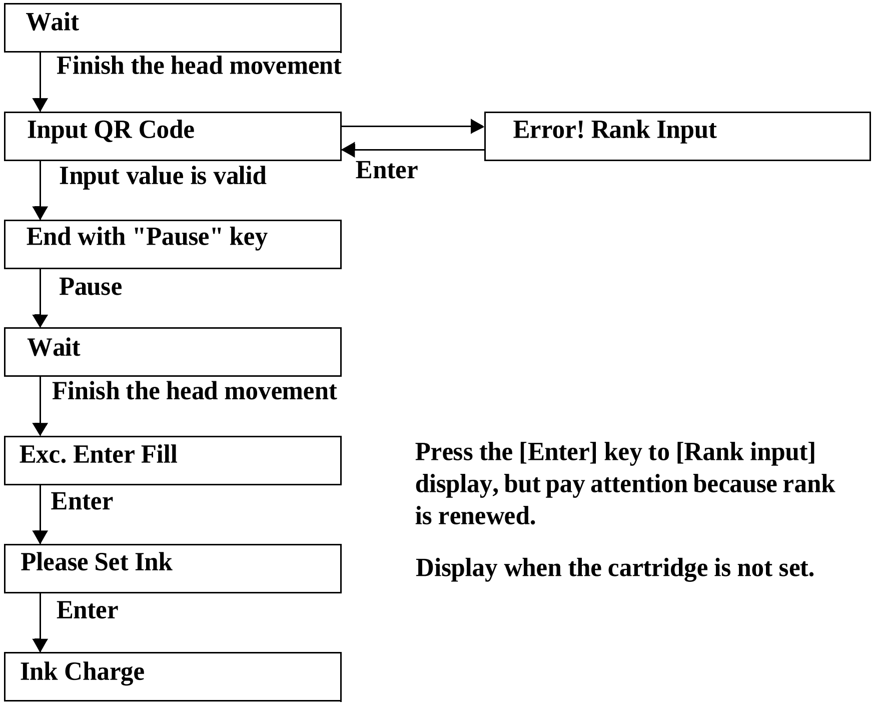
QR CODE INPUT

Mode for the QR code input.

CAUTION

- **This head rank input way is for production line by a special bar code reader.**
- **For service, you should perform head rank input by panel input.**

Following figure showing QR code input menu.


Wait
Finish the head movement
Input QR Code
Error! Rank Input
Enter
Input value is valid
End with "Pause" key
Pause
Wait
Finish the head movement
Exc. Enter Fill
Enter
Please Set Ink
Enter
Ink Charge

Press the [Enter] key to [Rank input] display, but pay attention because rank is renewed.

Display when the cartridge is not set.

Figure 5-42.

☐ "Pause" key initiate the "Input QR Code" menu.

☐ Input is ended when 3 head are input.

☐ After the ink charge, it goes top menu of adjustment.

☐ If the error condition is presented, retry it again from head 1 input.

PANEL INPUT

Mode for the input type selection.

Following figure showing selection menu sequence.

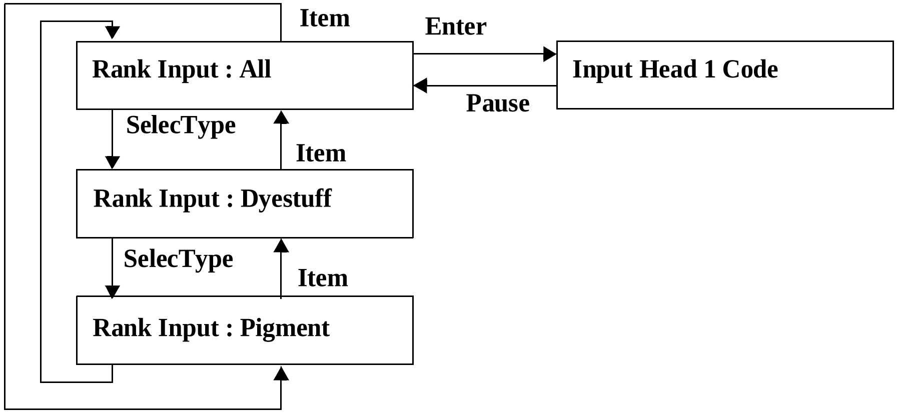

Item
Enter
Rank Input : All
Input Head 1 Code
Pause
SelecType
Item
Rank Input : Dyestuff
SelecType
Item
Rank Input : Pigment

Figure 5-43.

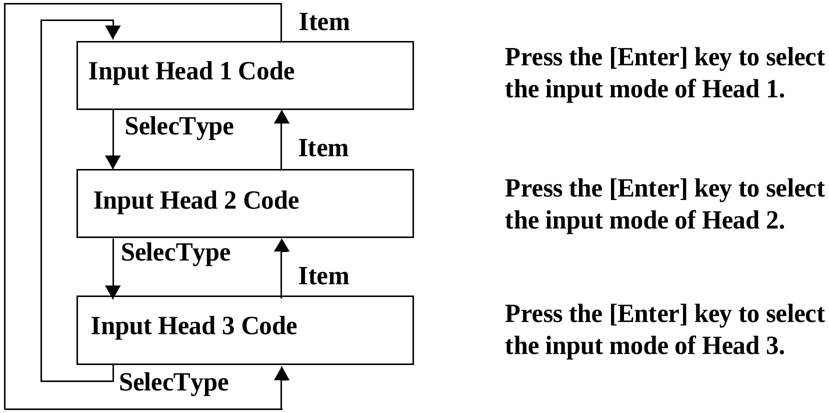
CAUTION

- **When input head rank, you should choose "All" only.**
- **Rank Input :Dyestuff is for head rank of Dye ink using only.**
- **Rank Input : Pigment is for head ran of Pigment ink using only.**

ALL

Mode for the head number selection in order to input the code of dyestuff and pigment ink.

Following figure shown head number selection menu.


Item
Input Head 1 Code
SelecType
Item
Input Head 2 Code
SelecType
Item
Input Head 3 Code
SelecType

Press the [Enter] key to select the input mode of Head 1.

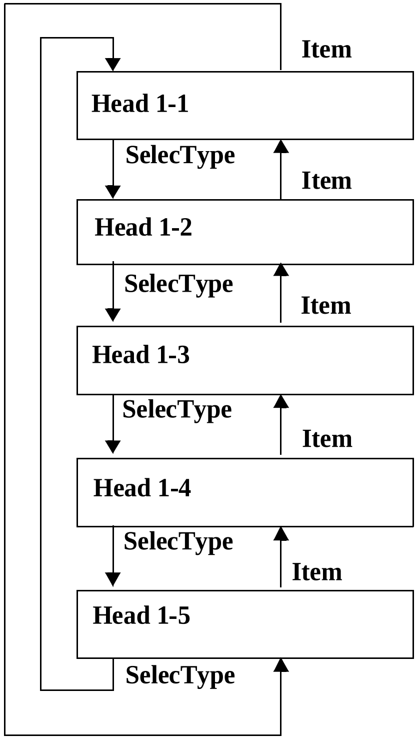
Press the [Enter] key to select the input mode of Head 2.

Press the [Enter] key to select the input mode of Head 3.

Figure 5-44.

☐ INPUT LINE SELECTION

Mode for the input line selection.Figure 5-45, "" showing line number selection menu.


Item
Head 1-1
SelecType
Item
Head 1-2
SelecType
Item
Head 1-3
SelecType
Item
Head 1-4
SelecType
Item
Head 1-5
SelecType

Press the [Enter] key to select the code input mode of 1st line.

Press the [Enter] key to select the code input mode of 2nd line.

Press the [Enter] key to select the code input mode of 3rd line.

Press the [Enter] key to select the code input mode of 4th line.

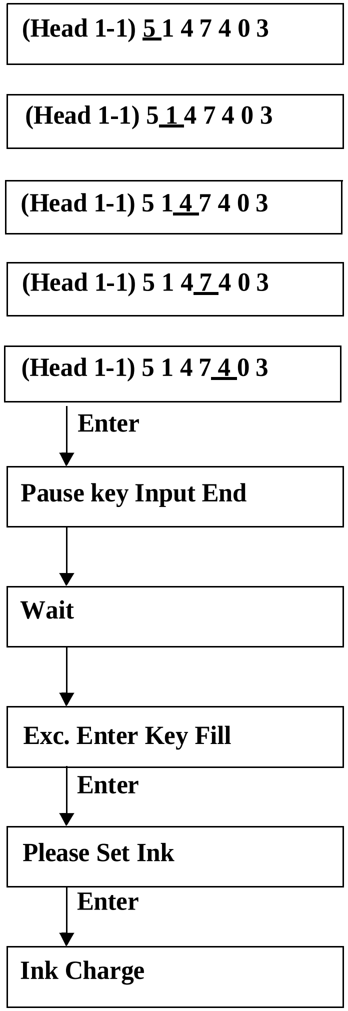
Press the [Enter] key to select the code input mode of 5th line.

Figure 5-45.

☐ Code input for each lines.

Mode for the input at all lines.Cursor is appeared under the input column.

Following figure showing sequence.


(Head 1-1) 5 1 4 7 4 0 3
(Head 1-1) 5 1 4 7 4 0 3
(Head 1-1) 5 1 4 7 4 0 3
(Head 1-1) 5 1 4 7 4 0 3
(Head 1-1) 5 1 4 7 4 0 3
Enter
Pause key Input End
Wait
Exc. Enter Key Fill
Enter
Please Set Ink
Enter
Ink Charge

Select the proper value with [Paper Feed+/-] key.

Select the proper value with [Paper Feed+/-] key.

Select the proper value with [Paper Feed+/-] key.

Select the proper value with [Paper Feed+/-] key.

Select the proper value with [Paper Feed+/-] key.

Press the [Enter] key to select the Adjust top menu.

Press the [Enter] key to select the Adjust top menu.

Press the [Enter] key to select the Adjust top menu.

Display when the cartridge is not set.

Figure 5-46.

- Move the cursor to the right with "SelecType" key.
- Move the cursor to the left with "Item" key.
- Cursor move to the left edge when you press the "SelecType" key at the right edge.
- Cursor move to the right edge when you press the "Item" key at the left edge.
- Cursor skip the space area.
- When the [Enter] key is pushed with [Head * -1]-[Head * -4], display moves to the menu next to 1 hierarchy.
- When the [Enter] key is pushed with [Head * -5], rank of the head is settled.
- After the code of the Head 1 or the Head 2 is input, display moves to [Head 2 code input] or [Head 3 code input] individually.
- After the ink fill, display moves to the top menu of the adjustment.
- When the [Pause] key is pushed, display moves to the menu next to 1 hierarchy. At this time, pay attention the code that input is not settling, although it is effective

DYESTUFF

Mode for the head selection of dyestuff ink code.

Following figure showing the sequence.

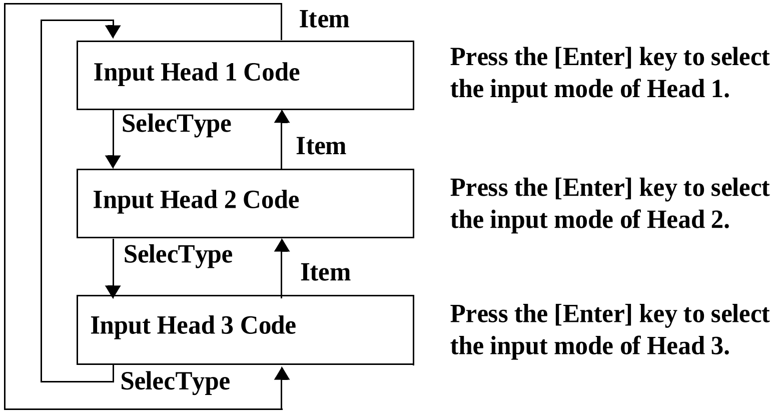
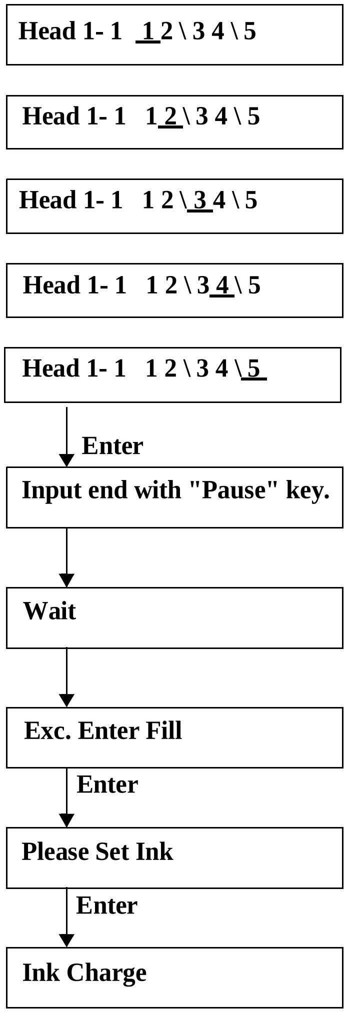

Item
Input Head 1 Code
Press the [Enter] key to select the input mode of Head 1.
SelecType
Item
Input Head 2 Code
Press the [Enter] key to select the input mode of Head 2.
SelecType
Item
Input Head 3 Code
Press the [Enter] key to select the input mode of Head 3.
SelecType

Figure 5-47.

☐ Input for the dyestuff

Mode for the head code input. Cursor is appeared under the input column.

Following figure showing the menu sequence.



Select the proper value with "Paper Feed+/-" key.

Select the proper value with "Paper Feed+/-" key.

Select the proper value with "Paper Feed+/-" key.

Select the proper value with "Paper Feed+/-" key.

Select the proper value with "Paper Feed+/-" key.

Return to the top menu of adjustment by pressing "Pause" key.

Return to the top menu of adjustment by pressing "Pause" key.

Return to the top menu of adjustment by pressing "Pause" key.

If the cartridge is not installed, left hand of the message will appears.

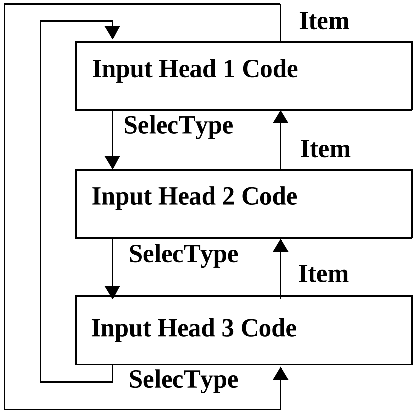
Figure 5-48.

- Move the cursor to the right with "SelecType" key.
- Move the cursor to the left with "Item" key.
- Cursor move to the left edge when you press the "SelecType" key at the right edge.
- Cursor move to the right edge when you press the "Item" key at the left edge.
- Cursor skip the space area.
- When the [Enter] key is pushed with [Head * -1]-[Head * -4], display moves to the menu next to 1 hierarchy.
- When the [Enter] key is pushed with [Head * -5], rank of the head is settled.
- After the code of the Head 1 or the Head 2 is input, display moves to [Head 2 code input] or [Head 3 code input] individually.
- After the ink fill, display moves to the top menu of the adjustment.
- When the [Pause] key is pushed, display moves to the menu next to 1 hierarchy. At this time, pay attention the code that input is not settling, although it is effective
- The migration of the cursor is skipped in the display item of [\ ].

PIGMENT INK

Mode for the head selection of pigment ink code

Following figure showing head number selection menu sequence.


Item
Input Head 1 Code
SelecType
Item
Input Head 2 Code
SelecType
Item
Input Head 3 Code
SelecType

Press the [Enter] key to select the input mode of Head 1.

Press the [Enter] key to select the input mode of Head 2.

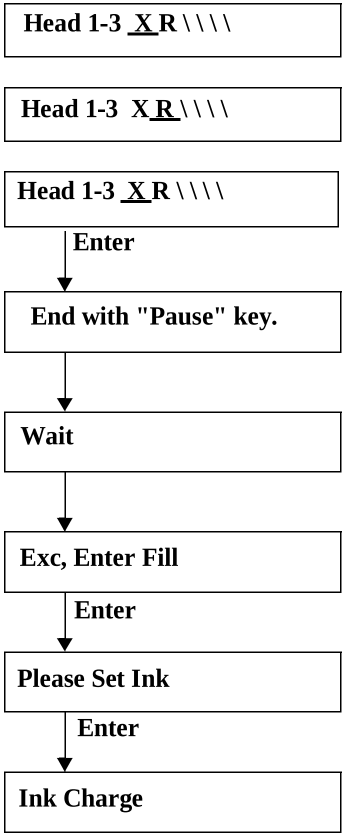
Press the [Enter] key to select the input mode of Head 3.

Figure 5-49.

☐ Cord input for pigment

Mode for the head code input. Cursor is appeared under the input column.

Following figure showing menu sequence.


Head 1-3 X R \ \ \ \
Head 1-3 X R \ \ \ \
Head 1-3 X R \ \ \ \
Enter
End with "Pause" key.
Wait
Exc, Enter Fill
Enter
Please Set Ink
Enter
Ink Charge

Select the proper value with "Paper Feed+/-" key.

Select the proper value with "Paper Feed+/-" key.

Select the proper value with "Paper Feed+/-" key.

Press the [Enter] key to select the Adjust top menu.

Press the [Enter] key to select the Adjust top menu.

Press the [Enter] key to select the Adjust top menu.

If the cartridge is not installed, left hand of the message will appears.

Figure 5-50.

- Move the cursor to the right with "SelecType" key.
- Move the cursor to the left with "Item" key.
- Cursor move to the left edge when you press the "SelecType" key at the right edge.

- Cursor move to the right edge when you press the "Item" key at the left edge.
- Cursor skip the space area.
- When the [Enter] key is pushed with [Head * -1]-[Head * -4], display moves to the menu next to 1 hierarchy.
- When the [Enter] key is pushed with [Head * -5], rank of the head is settled.
- After the code of the Head 1 or the Head 2 is input, display moves to [Head 2 code input] or [Head 3 code input] individually.
- After the ink fill, display moves to the top menu of the adjustment.
- When the [Pause] key is pushed, display moves to the menu next to 1 hierarchy. At this time, pay attention the code that input is not settling, although it is effective
- The migration of the cursor is skipped in the display item of [\ ].

5.3.4.4 Head nozzle check

Ensure the dot nozzle operation with test print sample.

If the nozzle injection is not perfect, perform the head cleaning several times.

Ink cartridge replacement message will appear when the ink cartridge is empty.

Print out sample is shown on the Figure 5-53, Figure 5-54 and Figure 5-55 .

Following figure showing the nozzle check menu sequence.

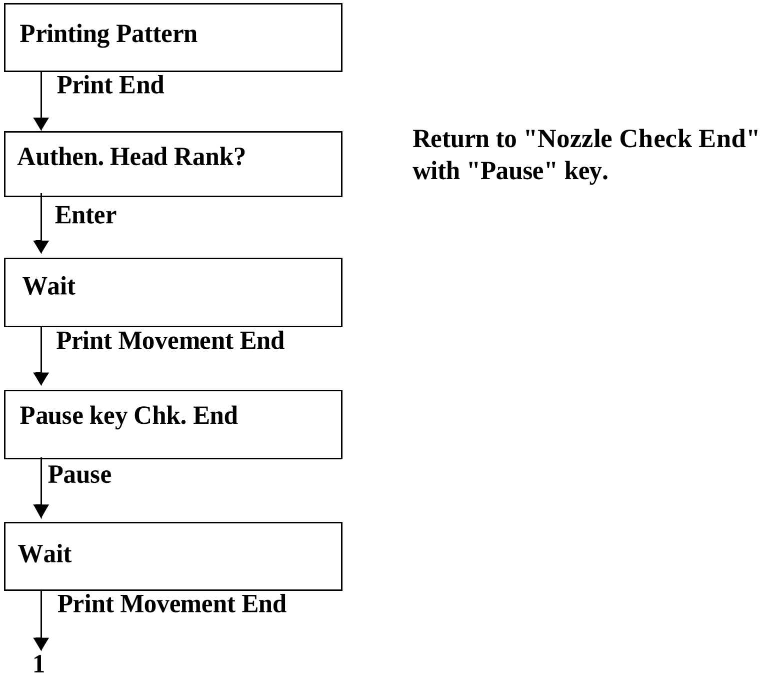
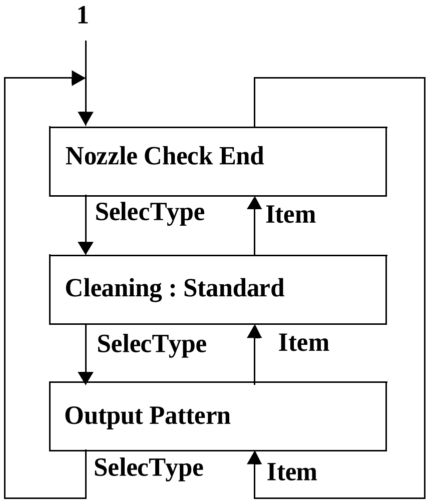

Printing Pattern
Print End
Authen. Head Rank?
Enter
Wait
Print Movement End
Pause key Chk. End
Pause
Wait
Print Movement End
1
Return to "Nozzle Check End" with "Pause" key.

Figure 5-51.



Press the [Enter] key to select the [A13 slant adjustment].
Press the [Pause] key to select the [Nozzle check].

Press the [Enter] key to cleaning.
Press the [Pause] key to select the [Nozzle check].

Press the [Enter] key to output the pattern.
Press the [Pause] key to select the [Nozzle check].

Figure 5-52.

- ☐ If the ink cartridge is installed, print out the sample even if the ink charge is not yet.
- ☐ Press the "Enter" key during the message of "Authen.HeadRank?",you can check the head rank on the print sample.

<Print sample for nozzle check pattern>

1. Check items:

- ☐ Nozzle ink injection (missing / uncontinuation / wind line)
- ☐ Satellite
- ☐ Timing fence
- ☐ Vertical direction nozzle lineup confirmation
- ☐ Horizontal direction nozzle lineup confirmation

2. Printing method:

- ☐ One pass with Bi-D at 180dpi resolution for PF and CR.

3. Pattern: Refer to following figure.

- ☐ It prints in the order of Black/Cyan/Magenta/Yellow/Light Magenta/Light Cyan from the left.

Print sample

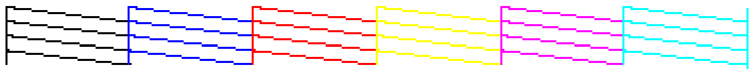


Figure 5-53.

4.Version/ink remainder quantity

- ☐ Version: T0xxxx.yyyy.zzzz
- ☐ Ink Pad: 9.9
- ☐ Head Rank: 6AT2A43 78Q3DN4 7,343,253
  422E2VV 6K3FWWW EY3B7YX
  TU U1YR TX UUTQ UX VUYX
  3X05VVS XYWWVWS Y1YZXWV
  W 45Y13 X 3L4E3 X 3Z2U3

5. Horizontal nozzle lineup confirmation

☐ It prints it in the order of Black/Cyan/Magenta/Yellow/Light Magenta/Light Cyan from the left.

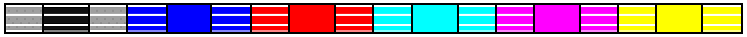


Figure 5-54.

6.Vertical nozzle lineup confirmation.

☐ It prints in the order of Black/Cyan/Magenta/Yellow/Light Magenta/Light Cyan from the left.

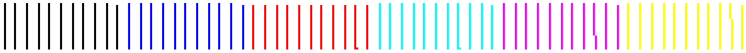


Figure 5-55.

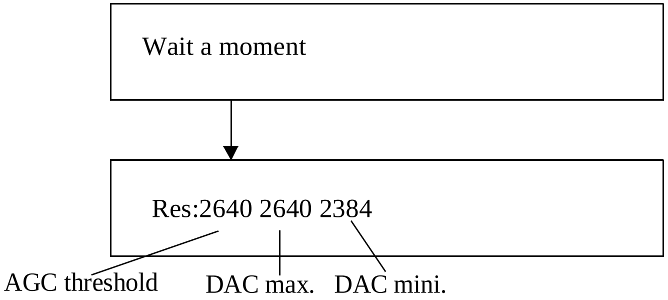
5.3.4.5 Offset Adjustment

Perform the dot missing detection and adjust the offset value automatically.

CAUTION

- **The offset adjustment will not be performed when Auto nozzle check setting is OFF in the maintenance mode.**

1. Move to Adjustment mode in the self-diagnostics.
2. Select Paper Source or Select Type switch to the Offset Adjustment, and then push Enter key to enter offset adjustment.
3. The printer performed offset adjustment automatically and display the result as following.



Wait a moment

Res:2640 2640 2384

Figure 5-56.

The display digit showing in the order of AGC threshold value/DAC max/and DAC mini.from the left.

CHECK POINT

- **The AGC threshold value are 2208 or more. If the value is less than 2280, the detector will judge the no dot missing even if the dot missing happen.**
- **DAC: D/A convertor**
- **DAC max. : Maximum input value of detector at dot missing detection.**
- **DAC min. : Minimum input value of detector at dot missing detection.**

5.3.4.6 Test report for dot missing detector

Print out the test result at the end of dot missing detection test.

<Result>

1: Count Value Of detect nozzle.

☐		1	2	3	4
☐	Color (K)	45	45	45	45
☐	Color (C)	45	45	45	45
☐	Color (LC)	45	45	45	45
☐	Color (LM)	45	45	45	45
☐	Color (M)	45	45	45	45
☐	Color (Y)	45	45	45	45

2: Count Value Of dot lost nozzle.

☐	1 2 3 4				
☐	Color (K)	0	0	0	0
☐	Color (C)	0	0	0	0
☐	Color (LC)	0	0	0	0
☐	Color (LM)	0	0	0	0
☐	Color (M)	0	0	0	0
☐	Color (Y)	0	0	0	0

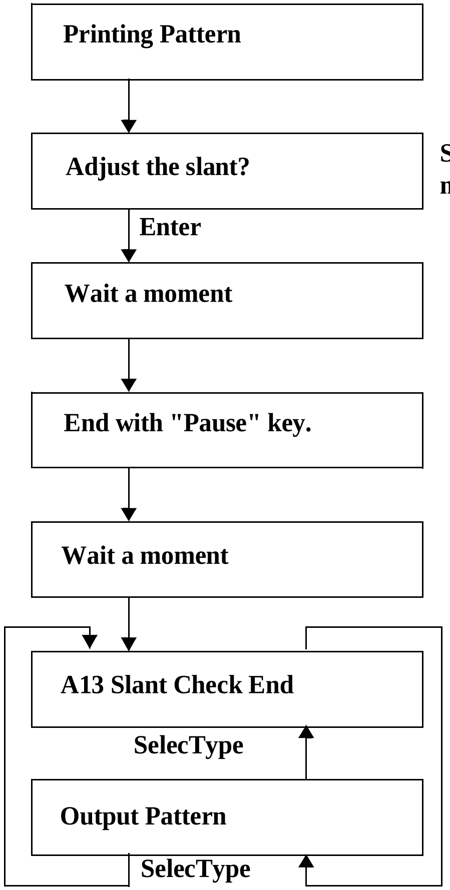
Figure 5-57.

5.3.4.7 A13 slant adjustment

Print the test pattern and make sure the print quality by referencing the Figure 5-58, "". If the slant condition is presented, perform the mechanical adjustment.

This test using A1 and A3 nozzle.

Following figure showing menu sequence.


Printing Pattern
Adjust the slant?
Enter
Wait a moment
End with "Pause" key.
Wait a moment
A13 Slant Check End
SelecType
Output Pattern
SelecType

Shift to "A123 Slant Check End" menu by pressing "Pause" key.

Shift to "A123" or "A13" slant check menu with following key operation.
"Enter" key : A123 slant check.
"Pause" key : A13 slant check.

Shift to"A13" slant check menu with "Pause" key.
Print out the pattern with "Enter" key.

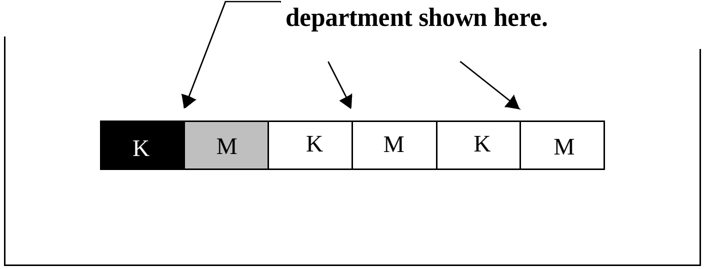
Figure 5-58.

<Print sample>

1.Check items: Black lines and Magenta lines are continue as same level by a magnifying glass with scale.

2.Printing method.

☐ One pass with Uni-D at 360dpi resolution for CR and 45 dpi for PF.1



When check the slant, regard the joint department shown here.

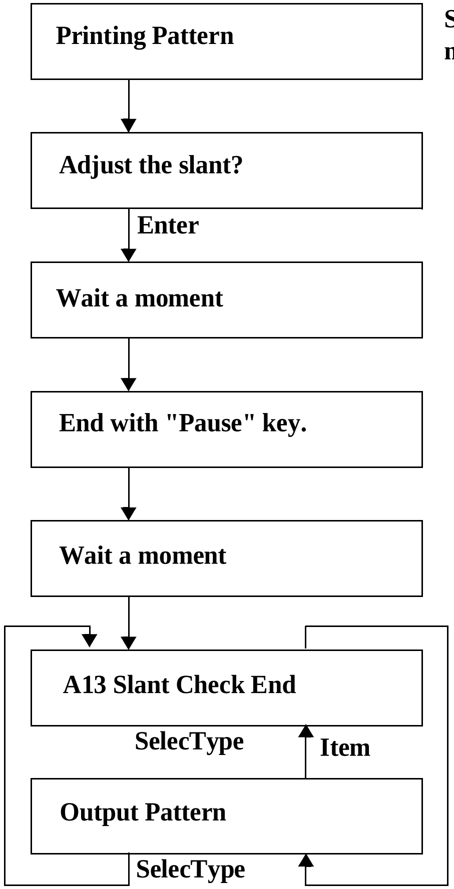
Figure 5-59.

5.3.4.8 A123 slant adjustment

Print the test pattern and make sure the print quality by referencing the Figure 5-60, "". If the slant condition is presented, perform the mechanical adjustment.

This test using A1,A2 and A3 nozzle.

Following figure showing menu sequence.


Printing Pattern
Adjust the slant?
Enter
Wait a moment
End with "Pause" key.
Wait a moment
A13 Slant Check End
SelecType
Item
Output Pattern
SelecType

Shift to "A123 Slant Check End" menu by pressing "Pause" key.

Shift to "B123" or "A123" slant check menu with following key operation.

"Enter" key: B123 slant check.

"Pause" key: A123 slant check.

Shift to"A123" slant check menu with "Pause" key.

Print out the pattern with "Enter"

Figure 5-60.

<Print sample>

1.Check items: Black lines, Light Cyan lines and Magenta lines are continue as same level by a magnifying glass with scale.

2.Printing method.

☐ One pass with Uni-D at 360dpi resolution for CR and 45 dpi for PF.

When check the slant, regard the joint department shown here.

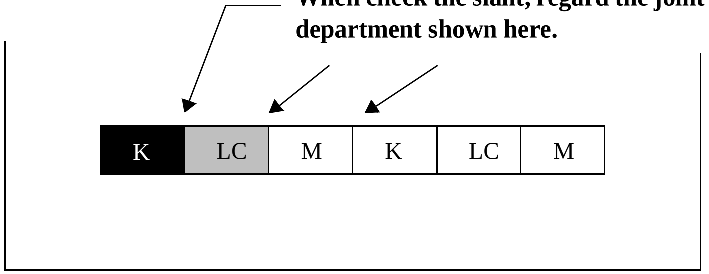


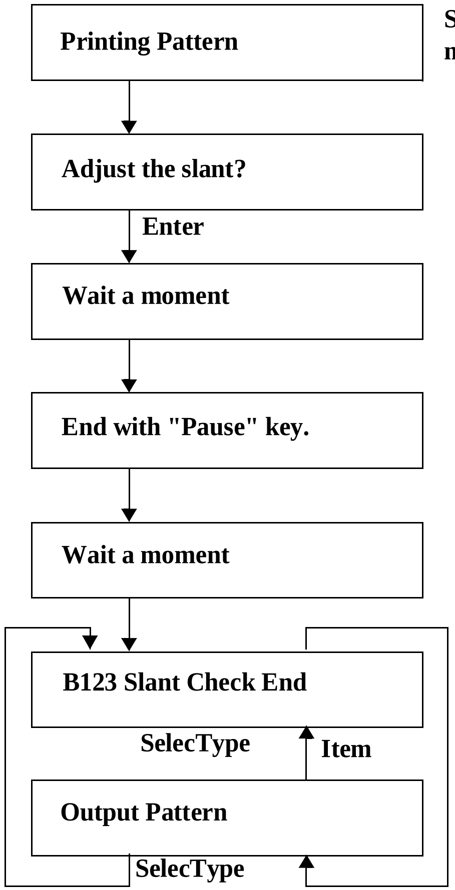
Figure 5-61.

5.3.4.9 B123 slant adjustment

Print the test pattern and make sure the print quality by referencing the Figure 5-62, "". If the slant condition is presented, perform the mechanical adjustment.

This test using B1,B2 and B3 nozzle.

Following figure showing menu sequence.


Printing Pattern
Adjust the slant?
Enter
Wait a moment
End with "Pause" key.
Wait a moment
B123 Slant Check End
SelecType
Item
Output Pattern
SelecType

Shift to "B123 Slant Check End" menu by pressing "Pause" key.

Shift to "Bi-D" adjustment or "B123" slant check menu with following key operation.
"Enter" key : Bi-D adjustment.
"Pause" key : B123 slant check.

Shift to"B123" slant check menu with "Pause" key.
Print out the pattern with "Enter" key.

Figure 5-62.

<Print sample>

1.Check items: Cyan lines, Light Magenta lines and Yellow lines are continue as same level by a magnifying glass with scale.

2.Printing method.

☐ One pass with Uni-D at 360dpi resolution for CR and 45 dpi for PF.

When check the slant, regard the joint department shown here.

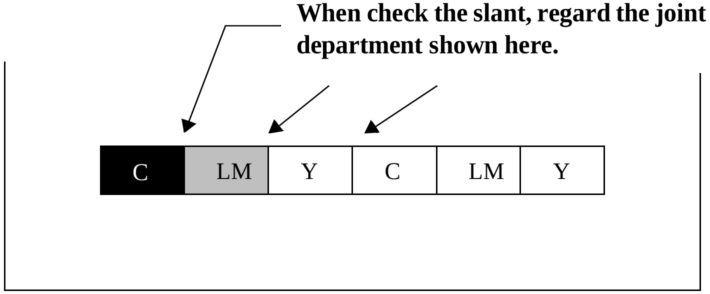


Figure 5-63.

5.3.4.10 Bi-D adjustment

Printing position adjustment with Bi-D printing. Adjust the print position for each color of head 1 to 3. Print the test pattern and make sure the print quality of CW print position and CCW print position then input the value of difference.

Following table showing adjustment menu. Figure 5-64, ""and Figure 5-65, "" showing menu sequence and Figure Figure 5-66, "" shouwing print pattern. .

Table 5-14.

Item	Description
Bi-D 240, V1. K	240 CPS with black ink.
Bi-D 240, V1. C	240 CPS with cyan ink.
Bi-D 240, V1. M	240 CPS with magenta ink.
Bi-D 240, V1. LC	240 CPS with light cyan ink.
Bi-D 240, V1. LM	240 CPS with light magenta ink.
Bi-D 240, V1. Y	240 CPS with yellow ink.
Bi-D 300, V2. K	300 CPS with black ink.
Bi-D 300, V2. C	300 CPS with cyan ink.
Bi-D 300, V2. M	300 CPS with magenta ink
Bi-D 300, V2. LC	300 CPS with light cyan ink
Bi-D 300, V2.LMK	300 CPS with light magenta ink
Bi-D 300, V2. Y	300 CPS with yellow ink

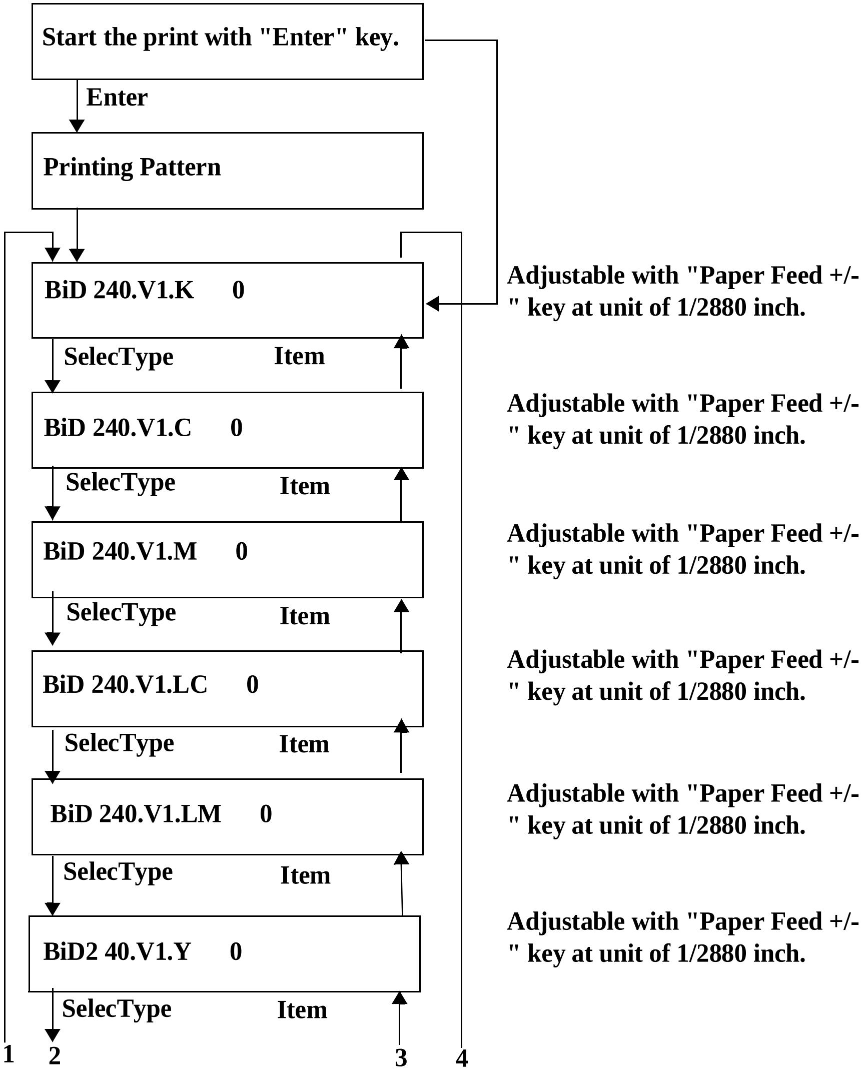
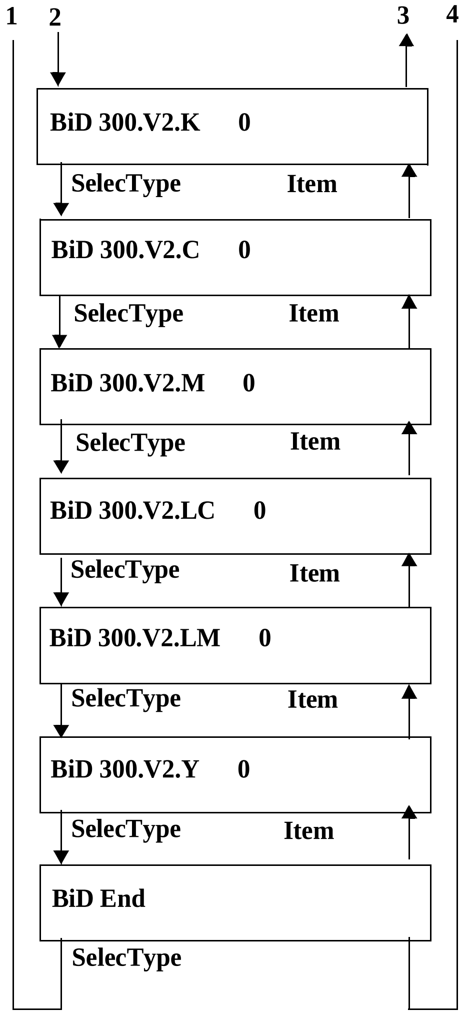

Start the print with "Enter" key.
Enter
Printing Pattern
BiD 240.V1.K 0
Adjustable with "Paper Feed +/- " key at unit of 1/2880 inch.
SelecType
Item
BiD 240.V1.C 0
Adjustable with "Paper Feed +/- " key at unit of 1/2880 inch.
SelecType
Item
BiD 240.V1.M 0
Adjustable with "Paper Feed +/- " key at unit of 1/2880 inch.
SelecType
Item
BiD 240.V1.LC 0
Adjustable with "Paper Feed +/- " key at unit of 1/2880 inch.
SelecType
Item
BiD 240.V1.LM 0
Adjustable with "Paper Feed +/- " key at unit of 1/2880 inch.
SelecType
Item
BiD2 40.V1.Y 0
Adjustable with "Paper Feed +/- " key at unit of 1/2880 inch.
SelecType
Item
1
2
3
4

Figure 5-64.


1
2
3
4
BiD 300.V2.K 0
SelecType
Item
BiD 300.V2.C 0
SelecType
Item
BiD 300.V2.M 0
SelecType
Item
BiD 300.V2.LC 0
SelecType
Item
BiD 300.V2.LM 0
SelecType
Item
BiD 300.V2.Y 0
SelecType
Item
BiD End
SelecType

Adjustable with "Paper Feed +/-" key at unit of 1/2880 inch.

Adjustable with "Paper Feed +/-" key at unit of 1/2880 inch.

Adjustable with "Paper Feed +/-" key at unit of 1/2880 inch.

Adjustable with "Paper Feed +/-" key at unit of 1/2880 inch.

Adjustable with "Paper Feed +/-" key at unit of 1/2880 inch.

Adjustable with "Paper Feed +/-" key at unit of 1/2880 inch.

Adjustable with "Paper Feed +/-" key at unit of 1/2880 inch.

Figure 5-65.

☐ When press the "Enter" key during the "BiD End" display, operation mode shift to the "Adj:Head_LR".

☐ Print all of the test pattern when "Enter" key is pressed during the "Enter Print "display.

☐ Print the related pattern when press the "Enter" key after the value change.

☐ Difference of maximum and minimum correction value are within 64/1440 inch with six colors.

<Print pattern>

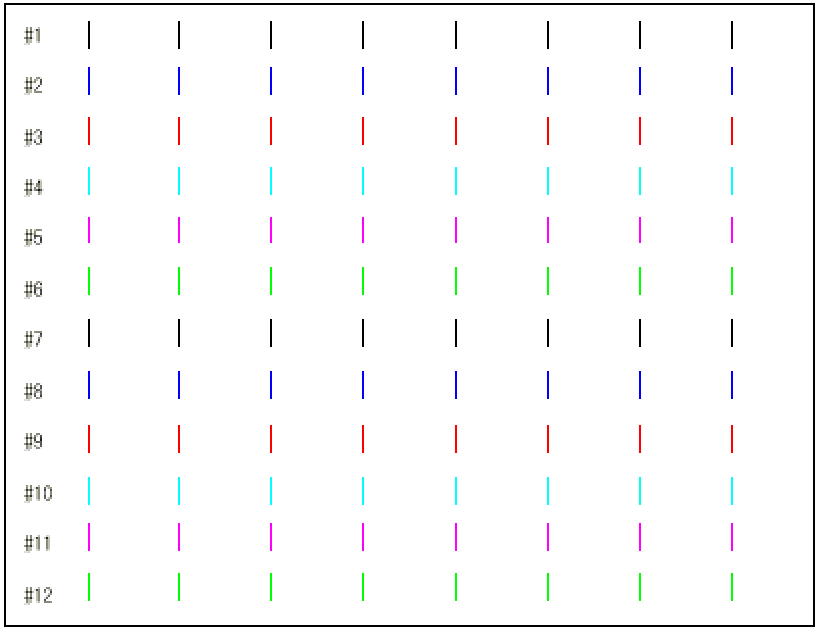

#1
#2
#3
#4
#5
#6
#7
#8
#9
#10
#11
#12

Figure 5-66.

5.3.4.11 Head LR (Head gap) adjustment

Correct the head to head gap.Print the test pattern with Uni-D mode and make sure the print quality by referencing the Figure 5-69, "" then input the correction value

Following table showing adjustment menu. Figure 5-67, "" showing menu sequence and Following figure showing print pattern.

Table 5-15.

Item	Description
Gap 240. V1 .C	240 CPS with cyan ink.
Gap 240 . V1 .M	240 CPS with magenta ink.
Gap 240 . V1 .LC	240 CPS with light cyan ink
Gap 240 . V1 .LM	240 CPS with light magenta ink.
Gap 240 . V1 .Y	240 CPS with yellow ink.
Gap 300 . V1 .C	300 CPS with cyan ink.
Gap 300 . V1 M	300 CPS with magenta ink.
Gap 300 . V1 .LC	300 CPS with light cyan ink.
Gap 300 . V1 .LM	300 CPS with light magenta ink.
Gap 300 . V1 Y	300 CPS with yellow ink.

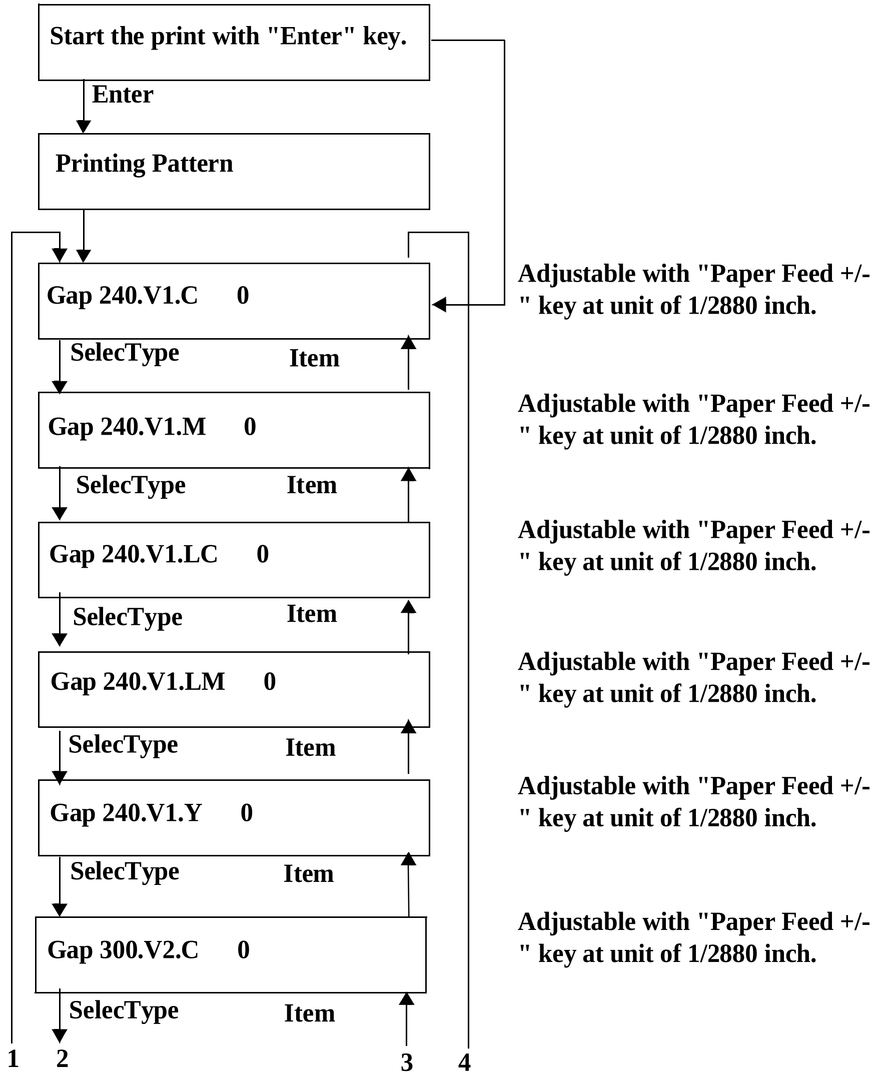
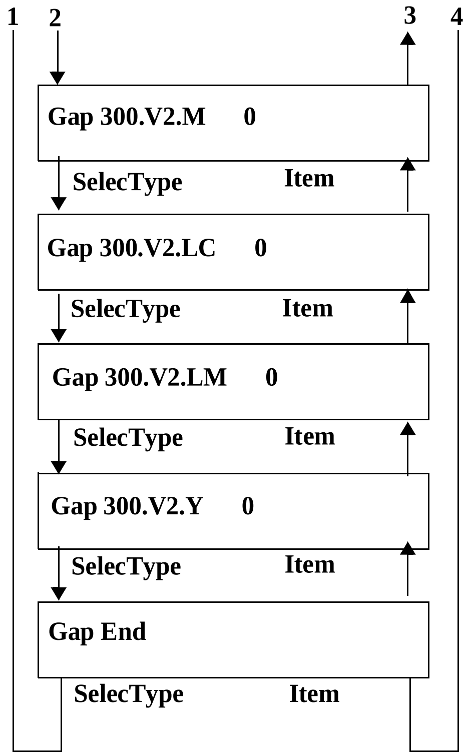

Start the print with "Enter" key.
Enter
Printing Pattern
Gap 240.V1.C 0
SelecType
Item
Gap 240.V1.M 0
SelecType
Item
Gap 240.V1.LC 0
SelecType
Item
Gap 240.V1.LM 0
SelecType
Item
Gap 240.V1.Y 0
SelecType
Item
Gap 300.V2.C 0
SelecType
Item
Adjustable with "Paper Feed +/-" key at unit of 1/2880 inch.
Adjustable with "Paper Feed +/-" key at unit of 1/2880 inch.
Adjustable with "Paper Feed +/-" key at unit of 1/2880 inch.
Adjustable with "Paper Feed +/-" key at unit of 1/2880 inch.
Adjustable with "Paper Feed +/-" key at unit of 1/2880 inch.
Adjustable with "Paper Feed +/-" key at unit of 1/2880 inch.
1
2
3
4

Figure 5-67.


1
2
3
4
Gap 300.V2.M 0
SelecType
Item
Gap 300.V2.LC 0
SelecType
Item
Gap 300.V2.LM 0
SelecType
Item
Gap 300.V2.Y 0
SelecType
Item
Gap End
SelecType
Item

Adjustable with "Paper Feed +/-" key at unit of 1/2880 inch.

Adjustable with "Paper Feed +/-" key at unit of 1/2880 inch.

Adjustable with "Paper Feed +/-" key at unit of 1/2880 inch.

Adjustable with "Paper Feed +/-" key at unit of 1/2880 inch.

Figure 5-68.

- ☐ When press the "Enter" key during the "Gap End" display, operation mode shift to the "Adj:Feed Adj".
- ☐ Print all of the test pattern when "Enter" key is pressed during the "Enter Print "display.
- ☐ Print the related pattern when press the "Enter" key after the value change.

Difference of maximum and minimum correction value are within 64/1440 inch with six colors.

<Print pattern>

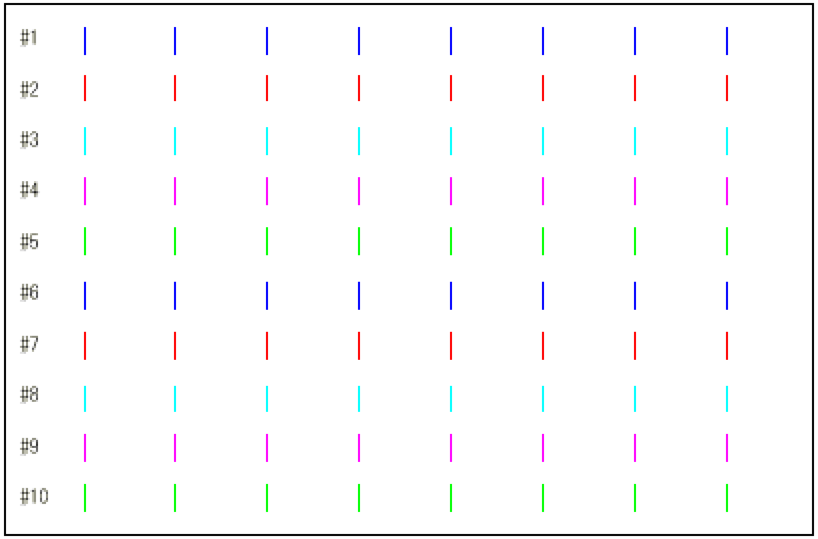
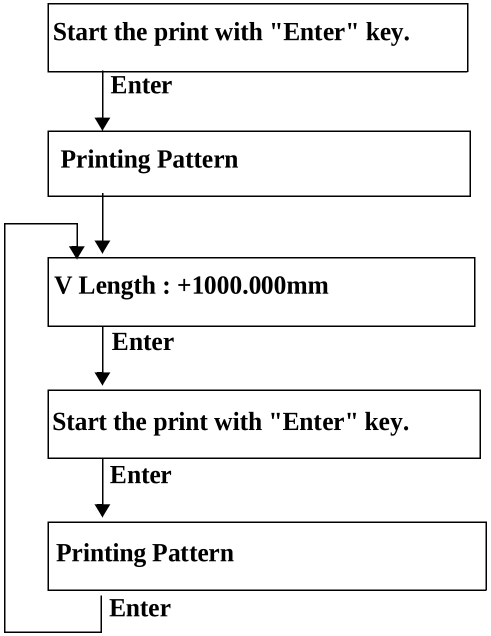

#1
#2
#3
#4
#5
#6
#7
#8
#9
#10

Figure 5-69.

5.3.4.12 Feed adjustment

Perform the distance revision in the paper conveyance.Print the line pattern in direction of paper feeding and input the distance in order to decide the PF encoder resolution by firmware. Figure 5-70, "" showing adjustment menu. showing menu sequence and Following figure showing print pattern.


Start the print with "Enter" key.
Enter
Printing Pattern
V Length : +1000.000mm
Enter
Start the print with "Enter" key.
Enter
Printing Pattern
Enter

Press the [Pause] key to select the [V Length] input menu.

Adjustable with "Paper Feed +/-" key at unit of 0.001 mm.

Press the [Pause] key to select the [Top & Bottom] menu.

Figure 5-70.

<Print pattern>

Adjustment item: Paper feed length

Printing method: Length 1000mm/ Two pass with Uni-D at 720dpi resolution for CR and 360 dpi for PF.

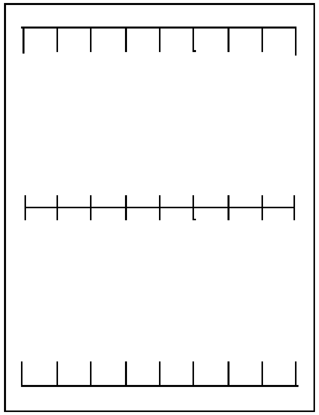


Figure 5-71.

5.3.4.13 Top and Bottom adjustment

Perform the printing and form cut then input the distance of front sensor-head, cutter-head, edge sensor 0-head (print beginning position) in order to adjust the top, bottom and side margin. Following figure showing menu sequence and Figure 5-69 showing print pattern.

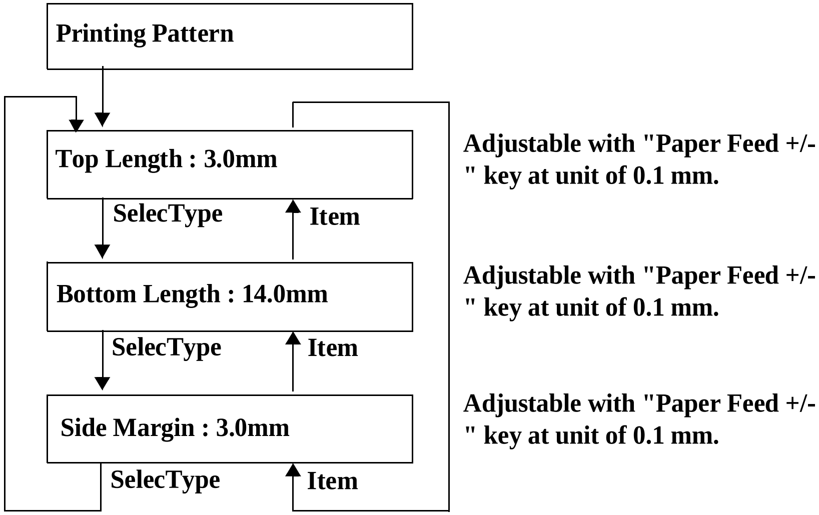

Printing Pattern
Top Length : 3.0mm
Adjustable with "Paper Feed +/- " key at unit of 0.1 mm.
SelecType
Item
Bottom Length : 14.0mm
Adjustable with "Paper Feed +/- " key at unit of 0.1 mm.
SelecType
Item
Side Margin : 3.0mm
Adjustable with "Paper Feed +/- " key at unit of 0.1 mm.
SelecType
Item

Figure 5-72.

- ☐ Shift to the "Top and Bottom" menu by pressing the "Pause" key during the input screen display.
- ☐ Shift to the "Bottom length" or "Side margin "menu by pressing the "Enter" at the input screen of "Top length "k or "Bottom length".
- ☐ Shift to the "RearSen.Pos.: xxmm" menu by pressing "Enter" key during the input screen of "Side margin".

Front: Correction pattern for cutter-head length.

Adjustment item: Top margin (Front sensor position) /Bottom margin (Cutter position) / Side margin (print beginning position)

Printing method: Uni-d one pass with black color at 180dpi resolution.

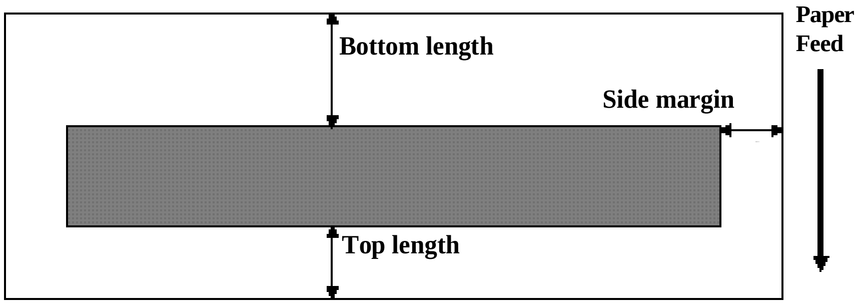
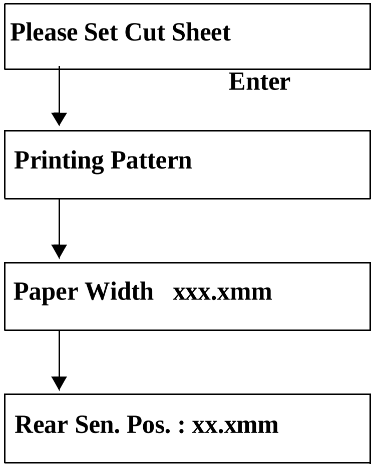

Bottom length
Side margin
Top length
Paper Feed

Figure 5-73.

5.3.4.14 Rear sensor position

This adjustment to detect the form length of cut paper precisely. The position of rear sensor inside firmware is adjusted on the basis of the nozzle to secure the maximum Pause range from the paper edge. Set the A3 cut sheet paper in direction of side put and cause a horizontal line (1 of dot line of black) printing in the place of 14 mm from the paper edge and measure the length of it from edge then input the value revision. This adjustment is not necessary at the field even if band correction is performed, although this item is necessary in a production process. Cut sheet is required without the condition of cut sheet placement when this item is selected.Figure 5-70 showing menu sequence and figure 5-71 showing print pattern.



Eject the sheet after the printing.

Shift to the "RearSen.Pos.:xxmm" with "Pause" key.

Adjust the position with unit 0.1mm by "Paper feed+/-" key.

Figure 5-74.

☐ Measure the length between the paper edge to printed line and input the rear sensor position.

Shift to the "Test print" by pressing "Enter" key during the "Rear sensor" display.

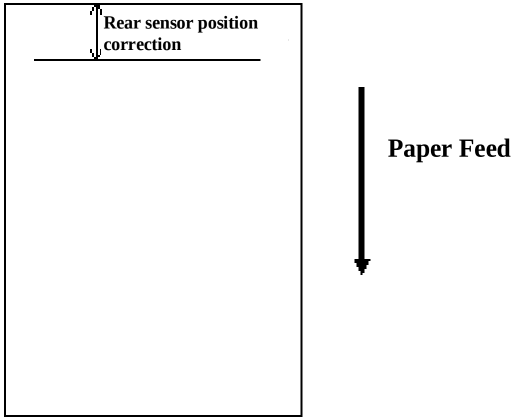


Figure 5-75.

5.3.4.15 Test pattern print

Print the adjustment pattern and confirm the various adjustment items also input the serial number.

Following figure showing menu sequence.

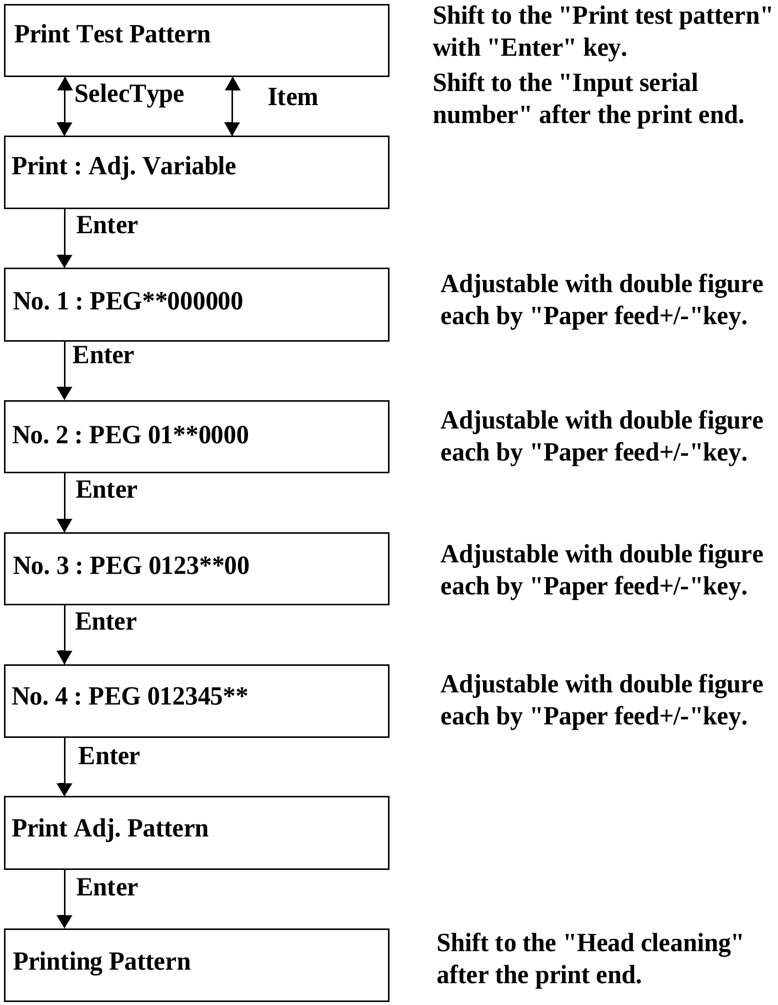

Print Test Pattern
Shift to the "Print test pattern" with "Enter" key.
SelecType
Item
Shift to the "Input serial number" after the print end.
Print : Adj. Variable
Enter
No. 1 : PEG**000000
Adjustable with double figure each by "Paper feed+/-"key.
Enter
No. 2 : PEG 01**0000
Adjustable with double figure each by "Paper feed+/-"key.
Enter
No. 3 : PEG 0123**00
Adjustable with double figure each by "Paper feed+/-"key.
Enter
No. 4 : PEG 012345**
Adjustable with double figure each by "Paper feed+/-"key.
Enter
Print Adj. Pattern
Enter
Printing Pattern
Shift to the "Head cleaning" after the print end.

Figure 5-76.

- ☐ When push the [Panel setting] key in the serial number input screen, it moves to the next screen. (When display "No.1:PEG**000000",it moves "No.2:PEG**000000".)
- ☐ When push the [Panel setting] key in the "Print adjustment pattern" display screen, it moves the serial number input screen "No. 1:PEG**000000".
- ☐ When push the [Setting item] key in the serial number input screen, it moves to the screen of before. (When display "No.2:PEG**000000",it moves "No.1:PEG**000000".)
- ☐ When push the [Setting item] key in the "Print adjustment pattern" display screen, it moves the serial number input screen "No. 4:PEG**000000".

5.3.4.16 Print head cleaning

This is the item that is carried out at the time of the end of the production process or before the head exchange.

Following figure showing the head washing menu sequence.

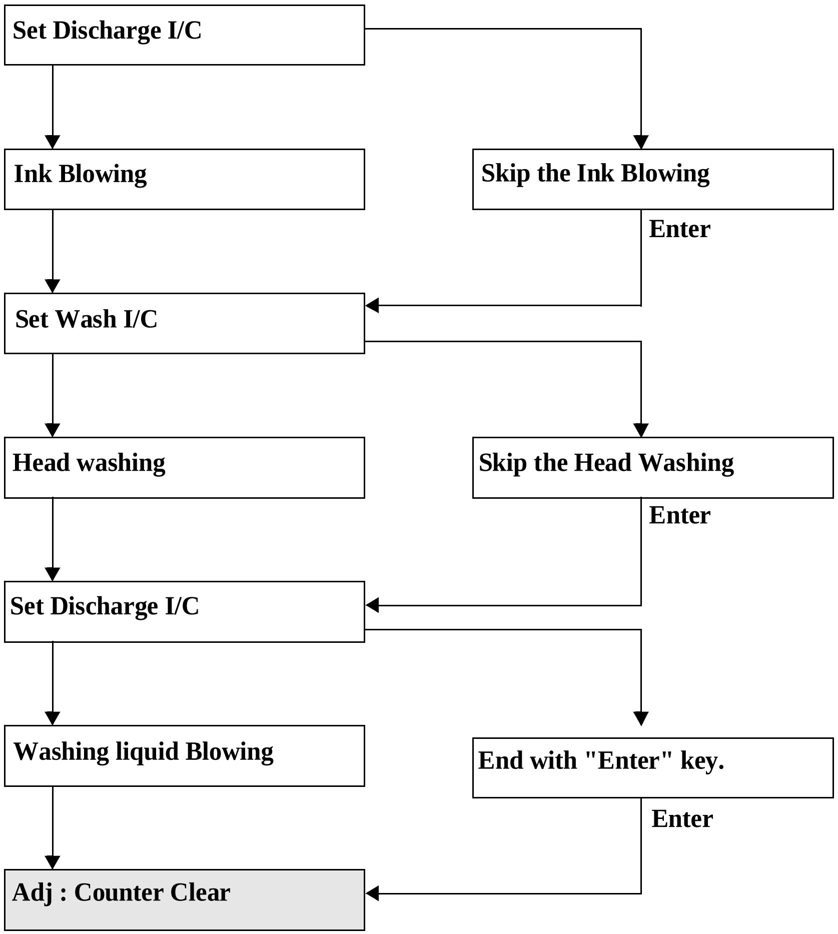

Set Discharge I/C
Ink Blowing
Skip the Ink Blowing
Enter
Set Wash I/C
Head washing
Skip the Head Washing
Enter
Set Discharge I/C
Washing liquid Blowing
End with "Enter" key.
Enter
Adj : Counter Clear

Figure 5-77.

CAUTION

- **Do not carry out the counter clear of the menu that is displayed at the end of the head washing.**
- **If the "Adjustment counter clear" was displayed, turn off the power supply of the printer and get out of from the self diagnostic operation mode.**
  Reason: Even the binding of the dye/paint is cleared by the counter clear. After then, the printer becomes dye/paint selecting condition, in the case that there is not the ink cartridge for starter and you can not go ahead previously.

5.3.4.17 Counter clear

Perform the initialization of the software counter of waste ink counter etc. The implementation of this item is permitted to only at the time of factory shipment.

CAUTION

- **Absolutely do not carry out the counter clear in the field maintenance.**
  Reason: If the counter clear is carried out, important information of the ink consumption counter etc. are changed, so the normal actuation is not able to warrant after.

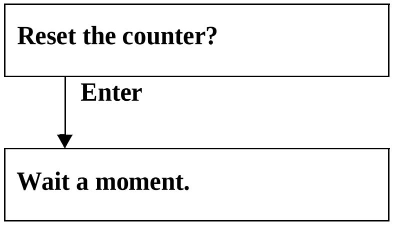
Following table showing the list and initial value of the counter that are cleared. Also, Following figure showing the counter clear menu sequence.

Table 5-16.

Counter that is cleared	Initial value
Protection counter A	0
Protection counter A work	0
Protection counter D	0
Protection counter D work	0
Ink counter R1	0
Ink counter R2	0
Ink counter R3	0
Sub ink tank counter K	0
Sub ink tank counter C	0
Sub ink tank counter M	0
Sub ink tank counter LC	0
Sub ink tank counter LM	0
Sub ink tank counter Y	0
Ink cartridge counter K	0
Ink cartridge counter C	0
Ink cartridge counter M	0
Ink cartridge counter LC	0

Table 5-16.

Counter that is cleared	Initial value
Ink cartridge counter LM	0
Ink cartridge counter Y	0
Total print timer	0
CL flag	0
Initial charge counter	1
Ink type	0
Ink out detection counter	0
Suction correction value	90
Correctable flag H	90
Cartridge change flag	0
CSIC	0
Total ink consumption	FFh
Total paper consumption	0
Ink consumption during nozzle check	0
Paper consumption during nozzle check	0
Y ink total injection counter	0
Y ink total injection at previous	0
Y total injection at previous CL2	0
Y total injection at next CL2	0



After the counter clear, display moves to [Slant check] menu.

Figure 5-78.

5.3.5 Cleaning

Perform the cleaning of the head.

Following table showing the items.

Following figure showing the cleaning menu sequence.

Table 5-17.

Item	Description
Normal cleaning KK0	A little suck quantity
Normal cleaning KK1	Large suck quantity
Normal cleaning KK2	Maximum suck quantity
Initial charge	Initial charging

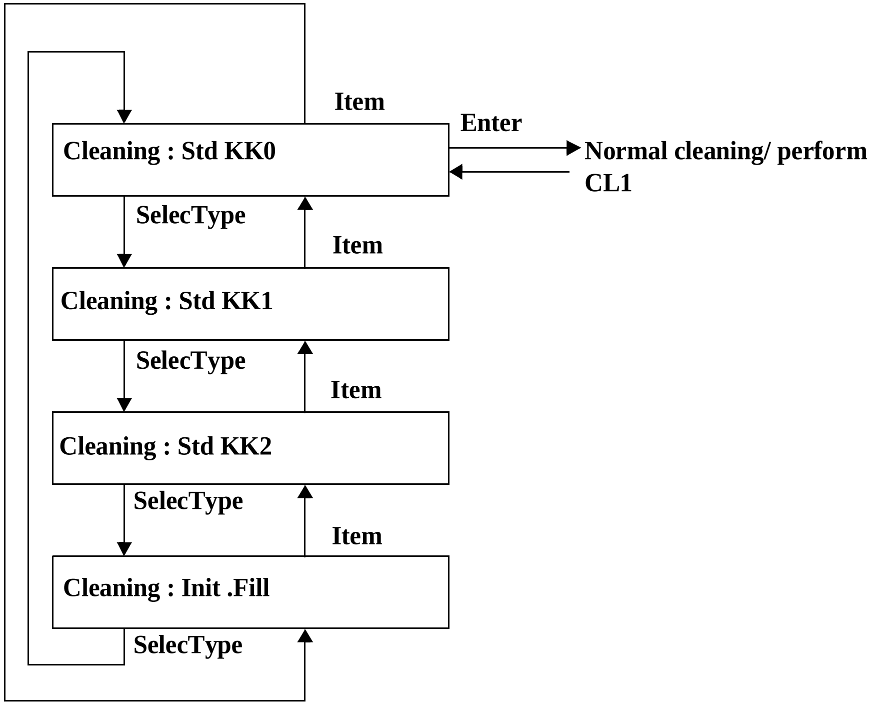

Item
Enter
Cleaning : Std KK0
Normal cleaning/ perform CL1
SelecType
Item
Cleaning : Std KK1
SelecType
Item
Cleaning : Std KK2
SelecType
Item
Cleaning : Init .Fill
SelecType

Figure 5-79.

5.3.5.1 Normal cleaning KK0

Perform the normal cleaning KK0.

Following figure showing the menu sequence.

Figure 5-80.

5.3.5.2 Normal cleaning KK1

Perform the normal cleaning KK1.

Following figure showing the menu sequence.

Figure 5-81.

5.3.5.3 Normal cleaning KK2

Perform the normal cleaning KK2.

Following figure showing the menu sequence.

Figure 5-82.

5.3.5.4 Initial ink charge

Perform the initial ink charge.

Following figure showing the menu sequence.

Ink Charge

Figure 5-83.

5.3.6 Print

Print the test pattern and the Adj. variable.

Following table showing the items.

Following figure showing the print menu sequence.

Table 5-18.

Item	Description
Check pattern	Print check pattern
Adjustment variable	Print adjustment variable

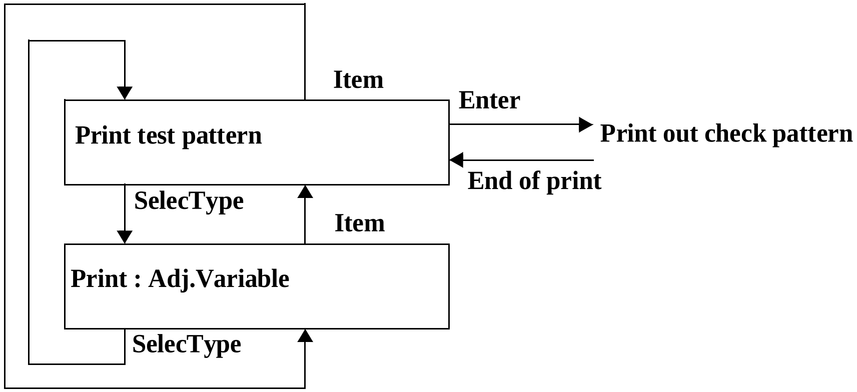

Item
Enter
Print test pattern
Print out check pattern
End of print
SelecType
Item
Print : Adj.Variable
SelecType

Figure 5-84.

5.3.6.1 Check pattern

Print the check pattern.

Following figure showing the check pattern print menu sequence.

Printing Pattern

Figure 5-85.

5.3.6.2

Print the Adj. variable.

Following figure showing the Adj. variable print menu sequence.

Printing Pattern

Figure 5-86.

5.3.7 Parameter

Using this menu you can reset or change the parameters for the printer mechanism controls. However, the parameter on this menu can also be modified from the adjustment menu. When servicing the printer, you do not need to separately update or reset the parameters from this menu.

CAUTION

- **"Parameter" is supported for printer production. So, please do not perform it in carelessness.**

Following table showing the items.

Following figure showing the parameter menu sequence.

Table 5-19.

Item	Description
Initialize	Initialize the adjustment parameter
Update	Input the value of adjustment parameter
Display	Display the value of adjustment parameter

Following figure showing the parameter initialize menu sequence.

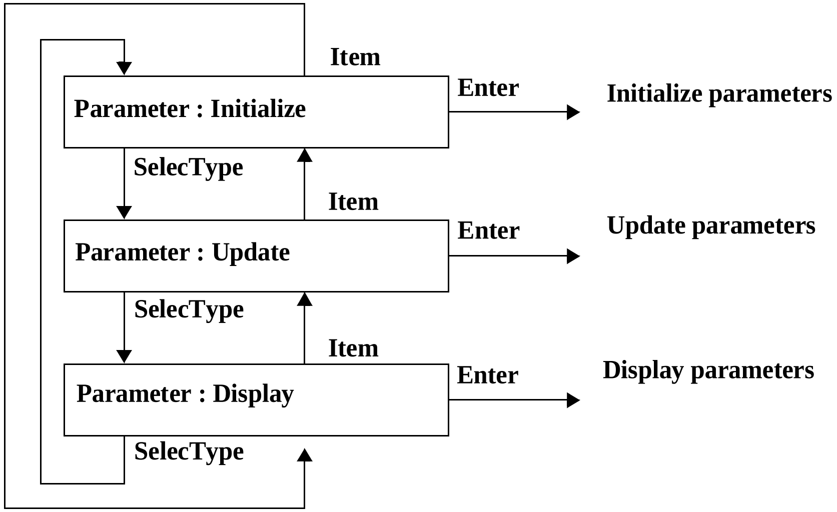

Item
Enter
Initialize parameters
Parameter : Initialize
SelecType
Item
Enter
Update parameters
Parameter : Update
SelecType
Item
Enter
Display parameters
Parameter : Display
SelecType

Figure 5-87.

5.3.7.1 Initialize the parameter

Initialize the parameter.

Following table showing the items.

Table 5-20. Initialize items

Item	Description
Init. All	Number of CR Motor movement.
	Distance of PF Motor movement.
	Number of head1 ink injection (K,C)
	Number of head2 ink injection (LC,LM)
	Number of head3 ink injection (M,Y)
	Number of cleaning.
	Print count
	Ink counter
	Sub tank ink counter
	Ink cartridge counter
	Initial charge information with attached cartridge.
	Ink end detection flag
	Waste ink counter
	Number of cut
	All initialize Gap adjustment value
	CR home correction value (Capping position)
	PF home correction value
	Head slide home correction value
	Front sensor position correction value
	Rear sensor position correction value
	Edge sensor vertical position correction value
	Edge sensor horizontal position correction value
	Cutter vertical position correction value
	Cutter horizontal position correction value
	Flashing position
	PF distance correction 1~3
	Serial number
	Number of wiping (each head)
	Number of rubbing (each head)
	Number of ink tube movement
	Number of paper set lever Up/Down
Initialize capping position	CR home position correction value (capping position)
Initialize PF resolution	PF distance correction value1~3
Initialize Serial number	Serial number
Initialize head1 history	Number of head 1 injection (K,C)
Initialize head2 history	Number of head 2 injection (LC,LM)
Initialize head3 history	Number of head 3 injection (M.Y)
Initialize wiping history	Number of wiping (each head)
Initialize rubbing history	Number of rubbing (each head)
Initialize waste ink history	Waste ink counter
Initialize CR motor history	Number of CR motor movement
Initialize PF motor history	Number of PF motor movement
Initialize Lever history	Number of paper set lever Up/Down
Initialize Cover history	Number of cover Open/Close
Initialize Ink cover history	Number of Ink cover Open/Close

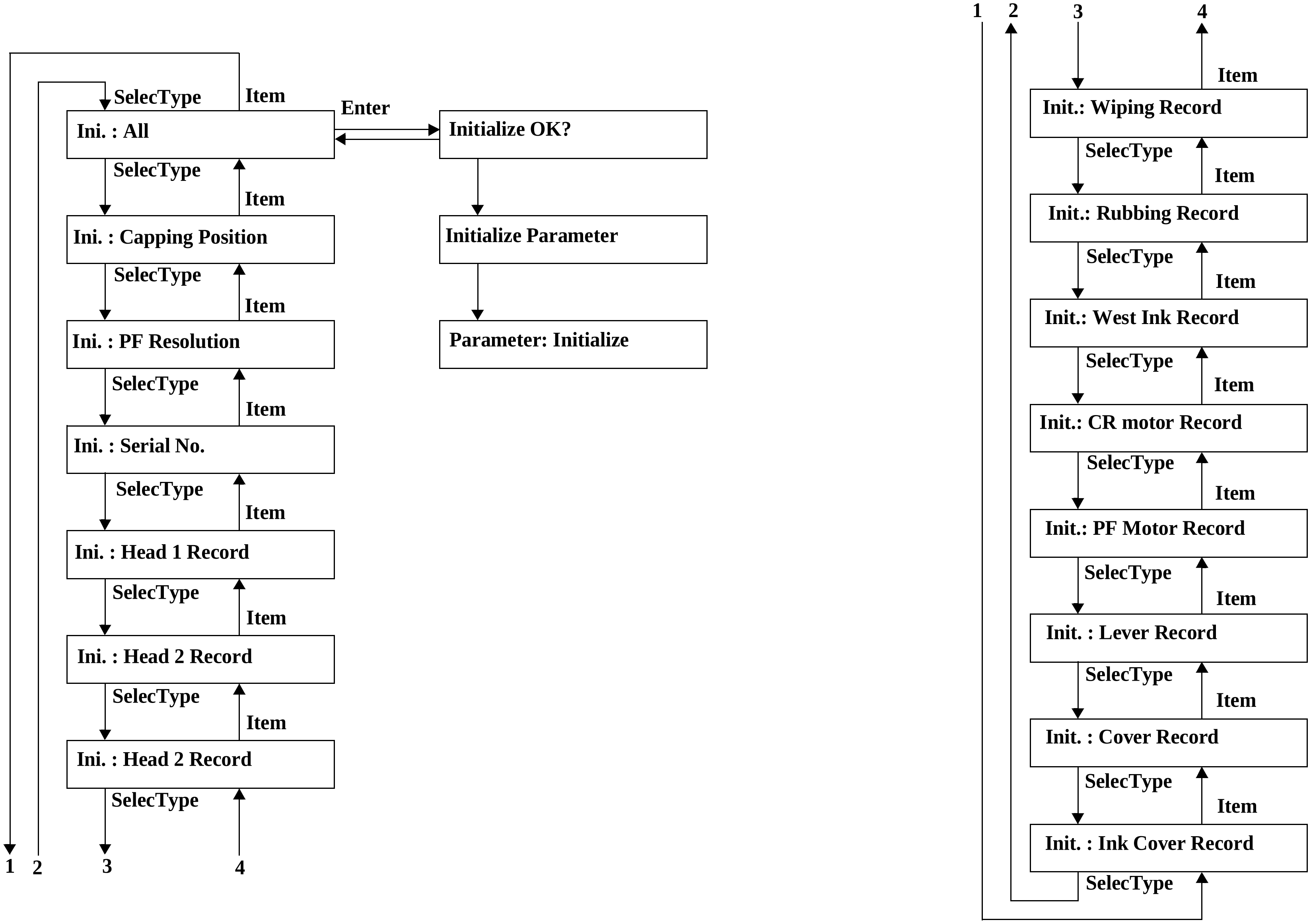

SelecType
Item
Enter
Ini. : All
Initialize OK?
Initialize Parameter
Parameter: Initialize
Ini. : Capping Position
Ini. : PF Resolution
Ini. : Serial No.
Ini. : Head 1 Record
Ini. : Head 2 Record
Ini. : Head 2 Record
1
2
3
4
Init.: Wiping Record
Init.: Rubbing Record
Init.: West Ink Record
Init.: CR motor Record
Init.: PF Motor Record
Init. : Lever Record
Init. : Cover Record
Init. : Ink Cover Record

Figure 5-88.

5.3.7.2 Update parameter

Update the adjustment parameter.

Following figure showing the update parameter menu sequence.

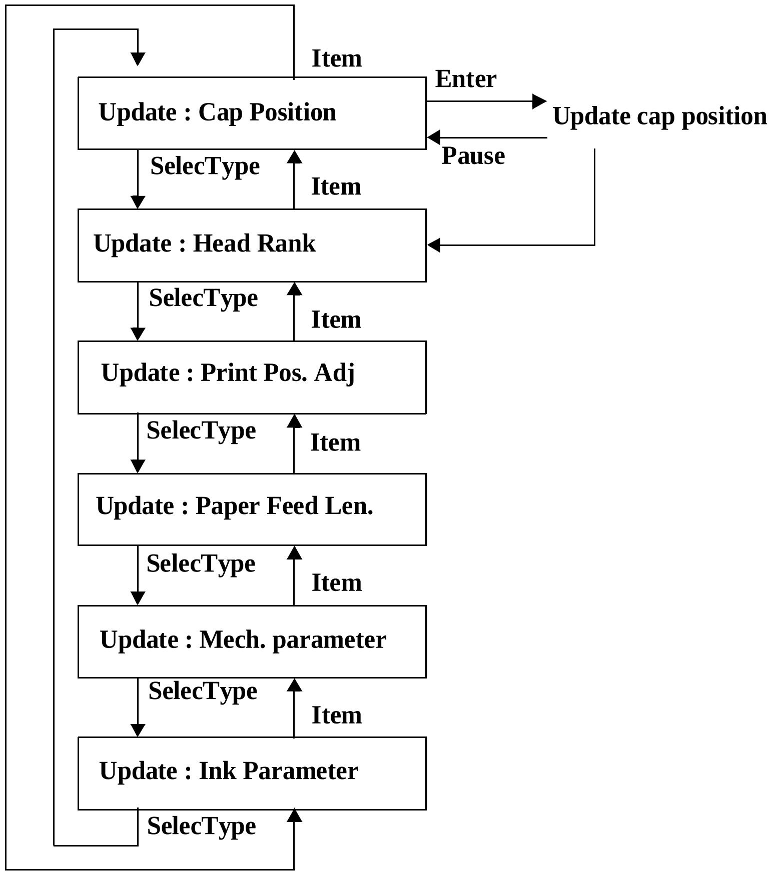

Item
Enter
Update : Cap Position
Update cap position
Pause
SelecType
Item
Update : Head Rank
SelecType
Item
Update : Print Pos. Adj
SelecType
Item
Update : Paper Feed Len.
SelecType
Item
Update : Mech. parameter
SelecType
Item
Update : Ink Parameter
SelecType

Figure 5-89.

1. Cap position

Update the cap position parameter.

Following figure showing the update cap position parameter menu sequence.

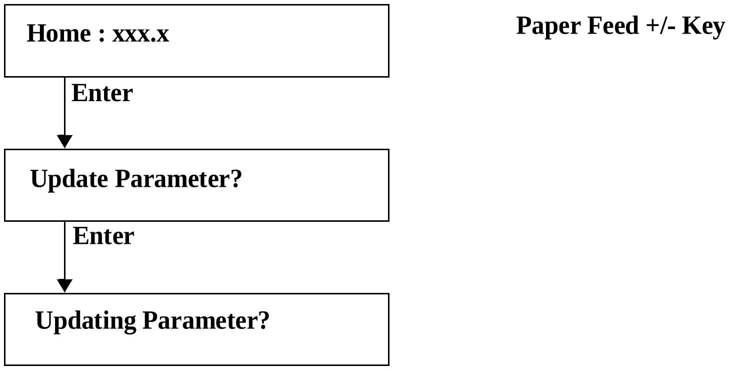

Home : xxx.x
Paper Feed +/- Key
Enter
Update Parameter?
Enter
Updating Parameter?

Figure 5-90.

☐ When the [Pause] key is pushed with the [Does update parameter?] display screen, display moves to [Update: Head rank].

2. Head Rank

The panel input of [5.3.4.3 Head rank input] is possible implement about head rank input.

Following figure showing the head rank input in the parameter update menu sequence.

Although entry is only the top menu, layer under is similar to [“Head Rank input” on page 229.].

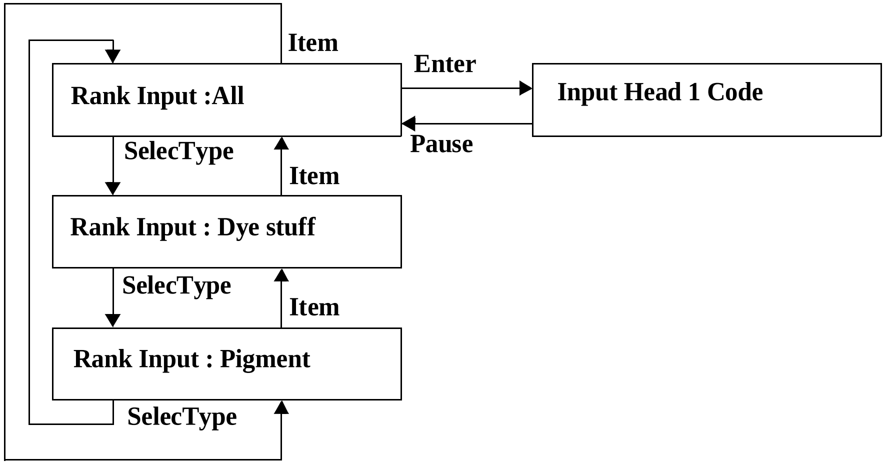
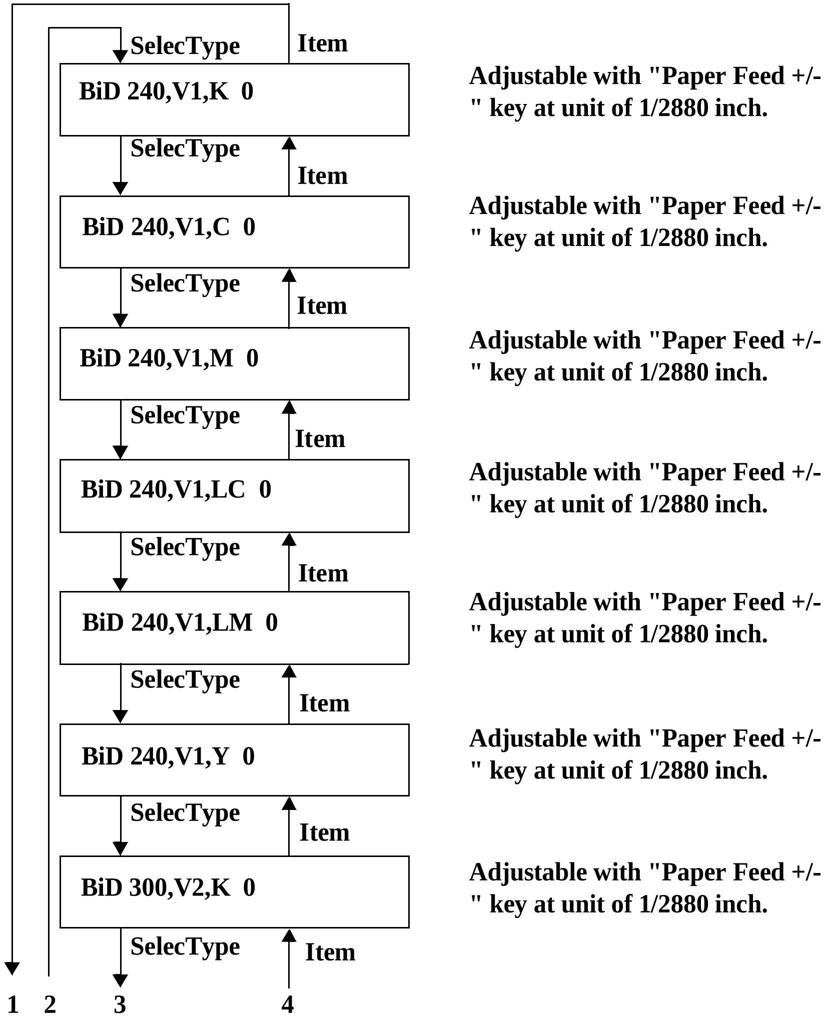

Item
Enter
Rank Input :All
Input Head 1 Code
Pause
SelecType
Item
Rank Input : Dye stuff
SelecType
Item
Rank Input : Pigment
SelecType

Figure 5-91.

3. Print position

Update the parameter of the Bi-D print position and the Gap position.

Following figure showing the print position menu sequence.


SelecType
Item
BiD 240,V1,K 0
Adjustable with "Paper Feed +/- " key at unit of 1/2880 inch.
SelecType
Item
BiD 240,V1,C 0
Adjustable with "Paper Feed +/- " key at unit of 1/2880 inch.
SelecType
Item
BiD 240,V1,M 0
Adjustable with "Paper Feed +/- " key at unit of 1/2880 inch.
SelecType
Item
BiD 240,V1,LC 0
Adjustable with "Paper Feed +/- " key at unit of 1/2880 inch.
SelecType
Item
BiD 240,V1,LM 0
Adjustable with "Paper Feed +/- " key at unit of 1/2880 inch.
SelecType
Item
BiD 240,V1,Y 0
Adjustable with "Paper Feed +/- " key at unit of 1/2880 inch.
SelecType
Item
BiD 300,V2,K 0
Adjustable with "Paper Feed +/- " key at unit of 1/2880 inch.
SelecType
Item
1
2
3
4

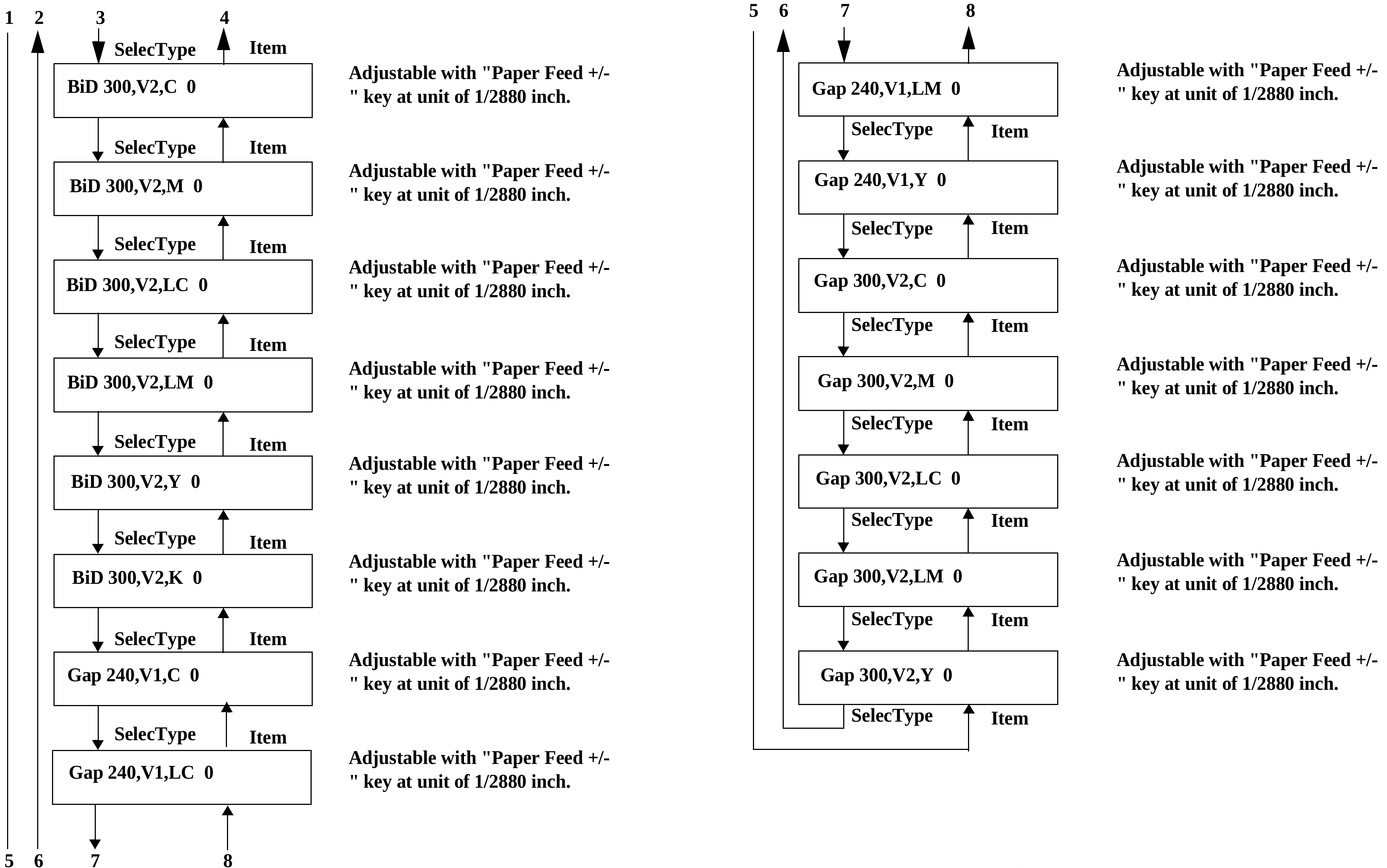

1
2
3
4
SelecType
Item
BiD 300,V2,C 0
Adjustable with "Paper Feed +/-" key at unit of 1/2880 inch.
BiD 300,V2,M 0
Adjustable with "Paper Feed +/-" key at unit of 1/2880 inch.
BiD 300,V2,LC 0
Adjustable with "Paper Feed +/-" key at unit of 1/2880 inch.
BiD 300,V2,LM 0
Adjustable with "Paper Feed +/-" key at unit of 1/2880 inch.
BiD 300,V2,Y 0
Adjustable with "Paper Feed +/-" key at unit of 1/2880 inch.
BiD 300,V2,K 0
Adjustable with "Paper Feed +/-" key at unit of 1/2880 inch.
Gap 240,V1,C 0
Adjustable with "Paper Feed +/-" key at unit of 1/2880 inch.
Gap 240,V1,LC 0
Adjustable with "Paper Feed +/-" key at unit of 1/2880 inch.
5
6
7
8
Gap 240,V1,LM 0
Adjustable with "Paper Feed +/-" key at unit of 1/2880 inch.
Gap 240,V1,Y 0
Adjustable with "Paper Feed +/-" key at unit of 1/2880 inch.
Gap 300,V2,C 0
Adjustable with "Paper Feed +/-" key at unit of 1/2880 inch.
Gap 300,V2,M 0
Adjustable with "Paper Feed +/-" key at unit of 1/2880 inch.
Gap 300,V2,LC 0
Adjustable with "Paper Feed +/-" key at unit of 1/2880 inch.
Gap 300,V2,LM 0
Adjustable with "Paper Feed +/-" key at unit of 1/2880 inch.
Gap 300,V2,Y 0
Adjustable with "Paper Feed +/-" key at unit of 1/2880 inch.

Figure 5-92.

4. Paper transportation distance

Update the paper transportation distance parameter.

Following figure showing the paper transportation distance parameter update menu sequence.

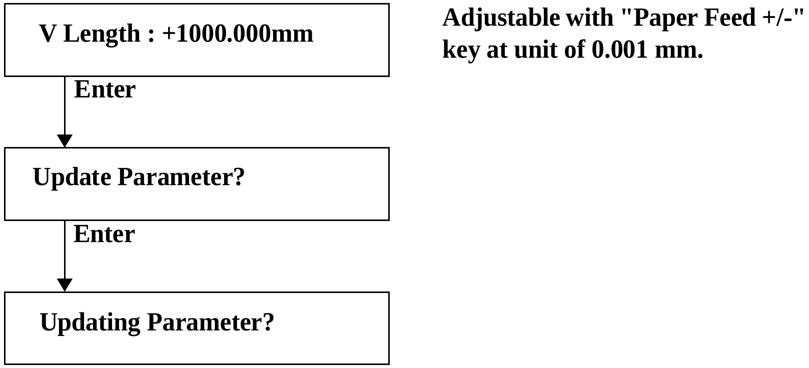

V Length : +1000.000mm
Adjustable with "Paper Feed +/-" key at unit of 0.001 mm.
Enter
Update Parameter?
Enter
Updating Parameter?

Figure 5-93.

☐ When the [Pause] key is pushed with the [Does update parameter?] display screen, display moves to [Update: Mechanical parameter].

5. Mechanical parameter

Update the mechanical parameter.

Following figure showing the mechanical parameter update menu sequence.

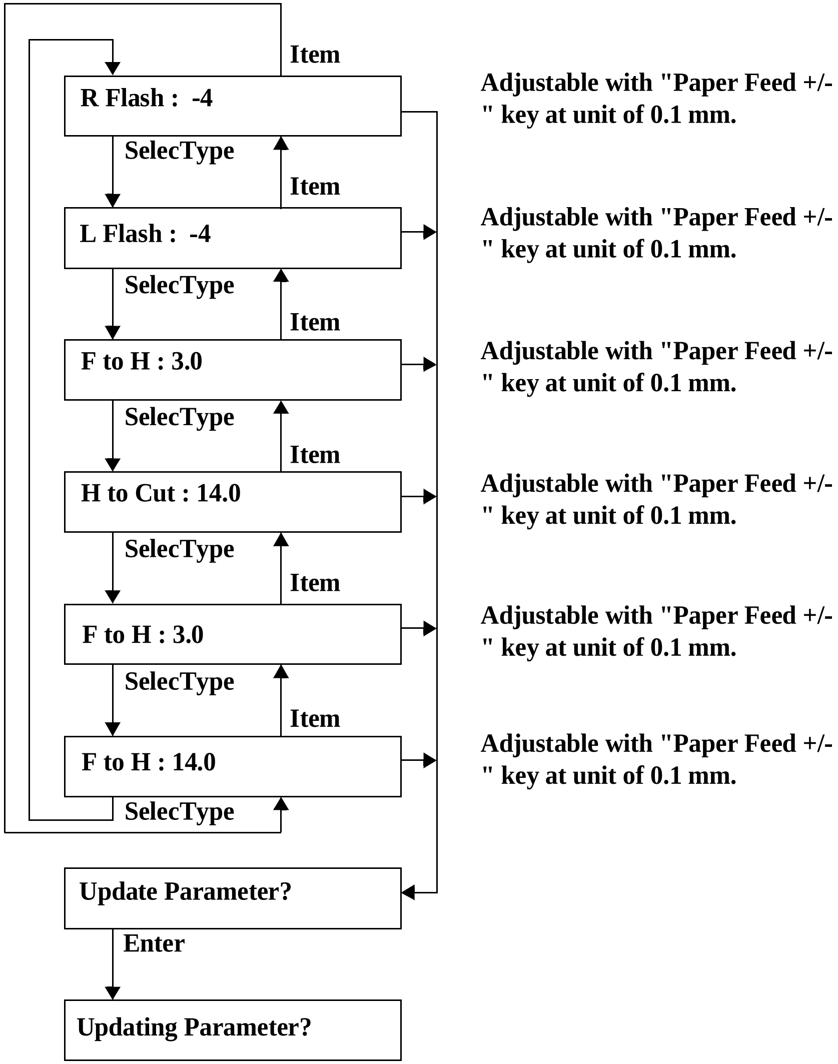

Item
R Flash : -4
Adjustable with "Paper Feed +/-" key at unit of 0.1 mm.
SelecType
Item
L Flash : -4
Adjustable with "Paper Feed +/-" key at unit of 0.1 mm.
SelecType
Item
F to H : 3.0
Adjustable with "Paper Feed +/-" key at unit of 0.1 mm.
SelecType
Item
H to Cut : 14.0
Adjustable with "Paper Feed +/-" key at unit of 0.1 mm.
SelecType
Item
F to H : 3.0
Adjustable with "Paper Feed +/-" key at unit of 0.1 mm.
SelecType
Item
F to H : 14.0
Adjustable with "Paper Feed +/-" key at unit of 0.1 mm.
SelecType
Update Parameter?
Enter
Updating Parameter?

Figure 5-94.

- ☐ [H to Cut] is the distance between the LC#1 to the cutter.
- ☐ [E to H] is the distance between the edge sensor to the LC#1 head.
- ☐ [R to H] is the distance between the rear sensor to the LC#1.
- ☐ When the [Pause] key is pushed with the [Does update parameter?] display screen, display moves to [Update: Ink parameter].

6. Ink parameter

Update the ink parameter.

Following figure showing the ink parameter update menu sequence.

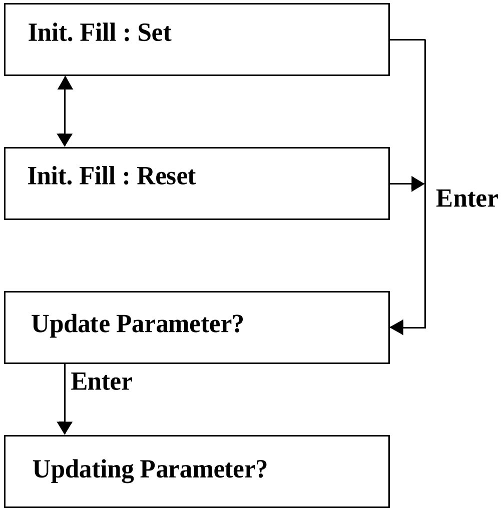

Init. Fill : Set
Init. Fill : Reset
Enter
Update Parameter?
Enter
Updating Parameter?

Figure 5-95.

- ☐ When the [Pause] key is pushed with the [Does update parameter?] display screen, display moves to [Update: Cap position].

5.3.7.3 Parameter display

Display the parameter of designated address.

Following figure showing the parameter display menu sequence.

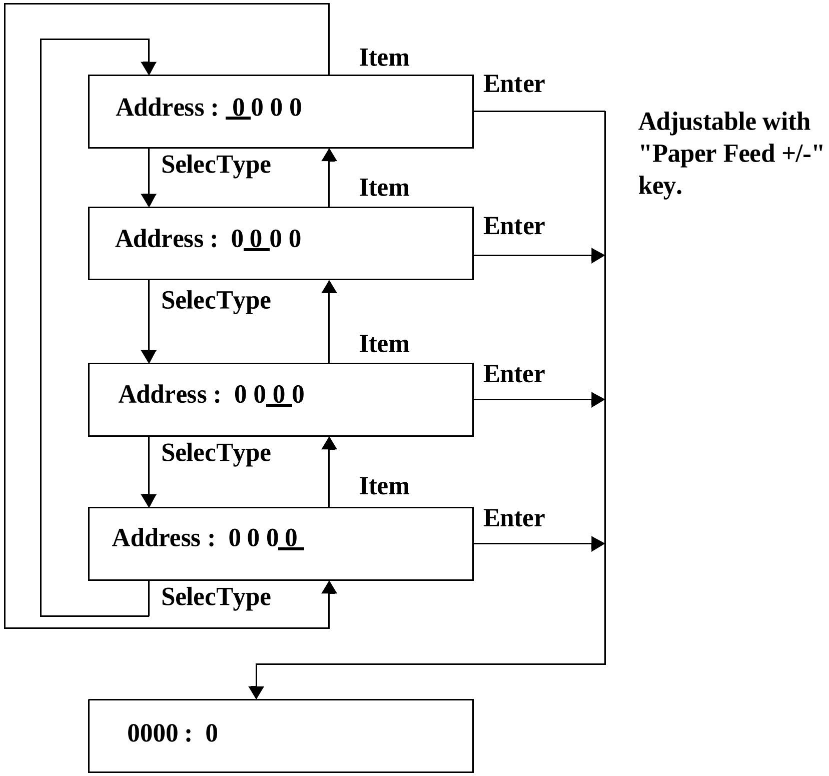

Item
Enter
Address : 0 0 0 0
Adjustable with "Paper Feed +/-" key.
SelecType
Item
Enter
Address : 0 0 0 0
SelecType
Item
Enter
Address : 0 0 0 0
SelecType
Item
Enter
Address : 0 0 0 0
SelecType
0000 : 0

Figure 5-96.

5.3.8 Reliability Test

Perform the reliability test of the mechanism and the head.

Following table showing the items.

Following figure showing the reliability test menu sequence.

Table 5-21. Reliability test

Item	Description
CR Motor	Bi-D carriage movement
PF Motor	Drive PF roller.
CR+PF Motor	CR and PF operation at same time.
Cutter	Paper cut
Head Up/Down	Continuous head Up/Down.
Head Lock	Continuous head lock and release.
Lever Lock	Continuous lever lock and release.
Cleaning	Cleaning
Print Reliability	Continuous printing
Shutter	Shutter reliability
Total reliability	CR,PF,CR+PF, Head Up/Down, Cutter solenoid.
Reliability confirmation	Confirm the number of reliability test.

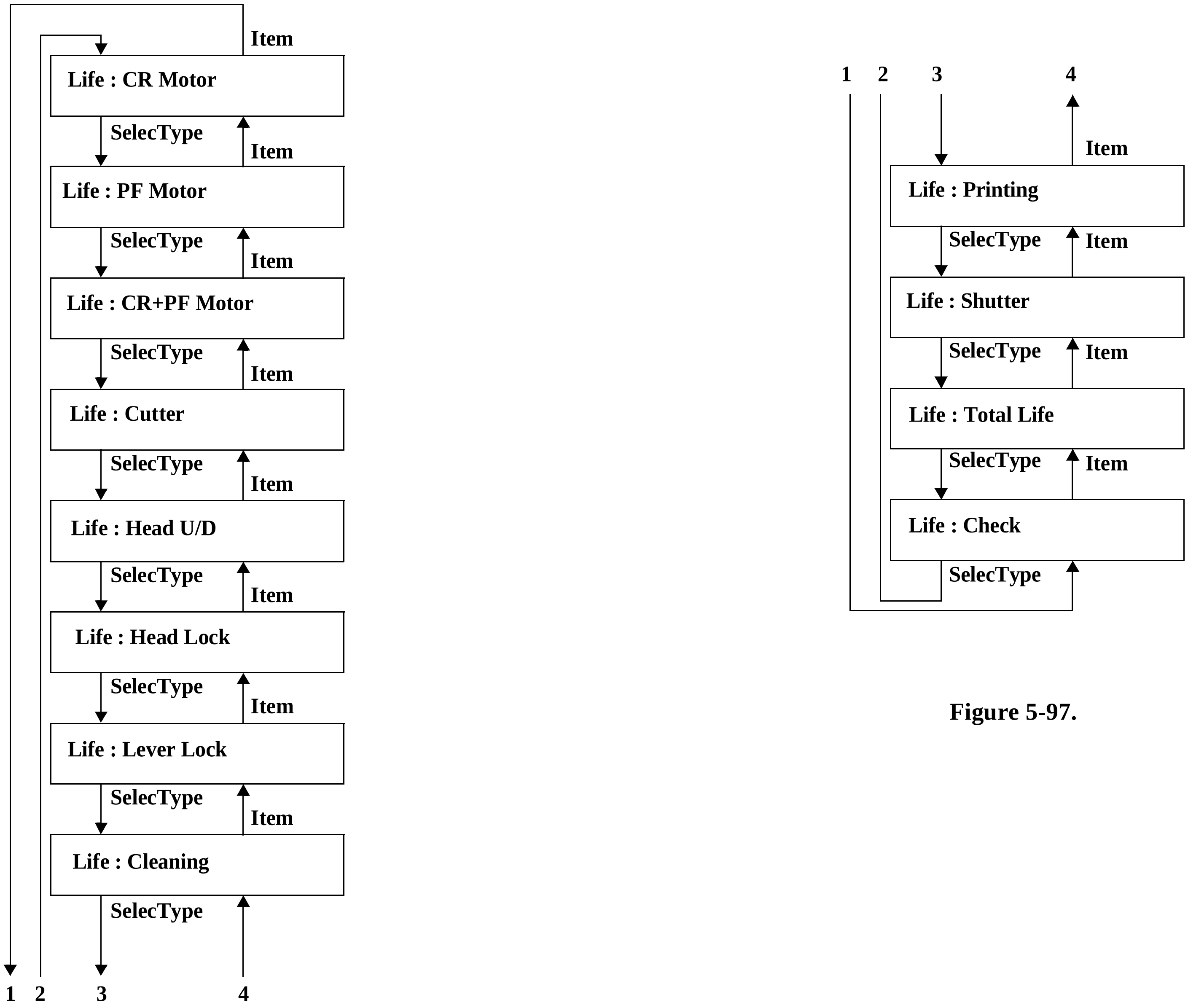

Item
Life : CR Motor
SelecType
Item
Life : PF Motor
SelecType
Item
Life : CR+PF Motor
SelecType
Item
Life : Cutter
SelecType
Item
Life : Head U/D
SelecType
Item
Life : Head Lock
SelecType
Item
Life : Lever Lock
SelecType
Item
Life : Cleaning
SelecType
1
2
3
4
1
2
3
4
Item
Life : Printing
SelecType
Item
Life : Shutter
SelecType
Item
Life : Total Life
SelecType
Item
Life : Check
SelecType

Figure 5-97.

5.3.8.1 CR Motor

Perform the CR motor reliability test.

The carriage runs with the round trip designated number at designated speed.

When the reliability number is [-1], reliability is repeated until key is input.

When the reliability number is [-1], the biggest count number is 99,999,999 times (within 8 column), and the count become 0 in the case that this is exceeded.

Following figure showing the CR motor reliability test menu sequence.

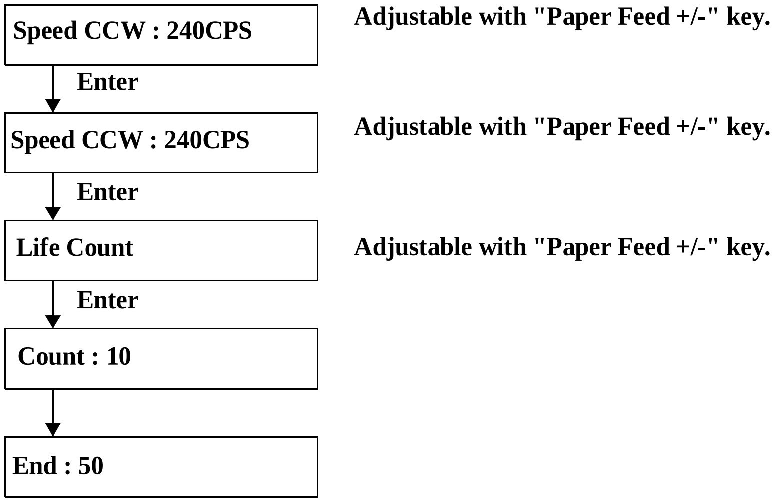

Speed CCW : 240CPS
Adjustable with "Paper Feed +/-" key.
Enter
Speed CCW : 240CPS
Adjustable with "Paper Feed +/-" key.
Enter
Life Count
Adjustable with "Paper Feed +/-" key.
Enter
Count : 10
End : 50

Figure 5-98.

- ☐ As for the parameter of CW, [240CPS], [300CPS], [400CPS], and [800CPS] are possible select.
- ☐ As for the parameter of CCW, [240CPS], [300CPS], [400CPS], and [800CPS] are possible select.
- ☐ The maximum value of the reliability number designation is [99,999,999 times].
- ☐ Carriage migration MAX location is 738.06 mm from the starting point location.
- ☐ Carriage migration MIN location is 111.05 mm from the starting point location.
- ☐ When the [Pause] key is pushed during the reliability test, the test can be broken.

5.3.8.2 PF Motor

Perform the PF motor reliability test.

The motor is actuated designated number.

When the reliability number is [-1], reliability is repeated until key is input.

When the reliability number is [-1], the biggest count number is 99,999,999 times (within 8 column), and the count become 0 in the case that this is exceeded.

Following figure showing the PF motor reliability test menu sequence.

Table 5-22.

	Movement distance is less than 8.6mm	Movement distance is more than 8.6mm
Speed	25 CPS	52 CPS
Acceleration speed	0.1G	0.2G
Decrease speed	0.1G	0.2G

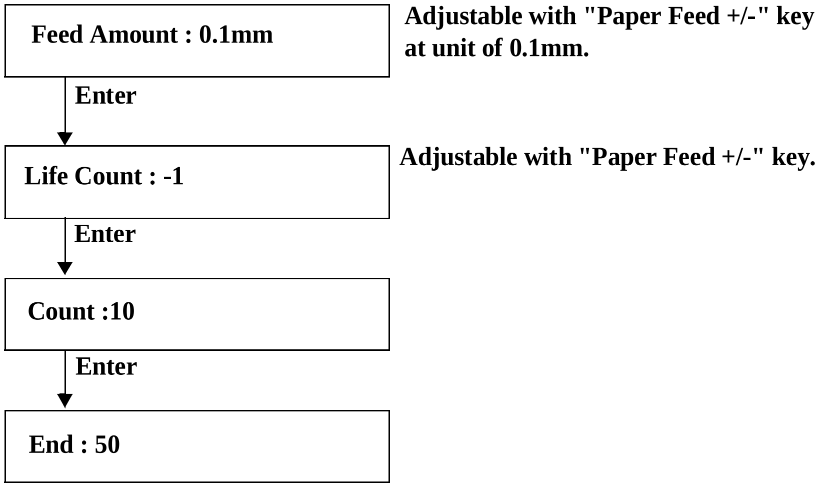

Feed Amount : 0.1mm
Adjustable with "Paper Feed +/-" key at unit of 0.1mm.
Enter
Life Count : -1
Adjustable with "Paper Feed +/-" key.
Enter
Count :10
Enter
End : 50

Figure 5-99.

- The maximum value of the paper feed is [100.0mm].
- The maximum value of the reliability number designation is [99,999,999 times].
- When the [Pause] key is pushed during the reliability test, the test can be broken.

5.3.8.3 CR + PF Motor

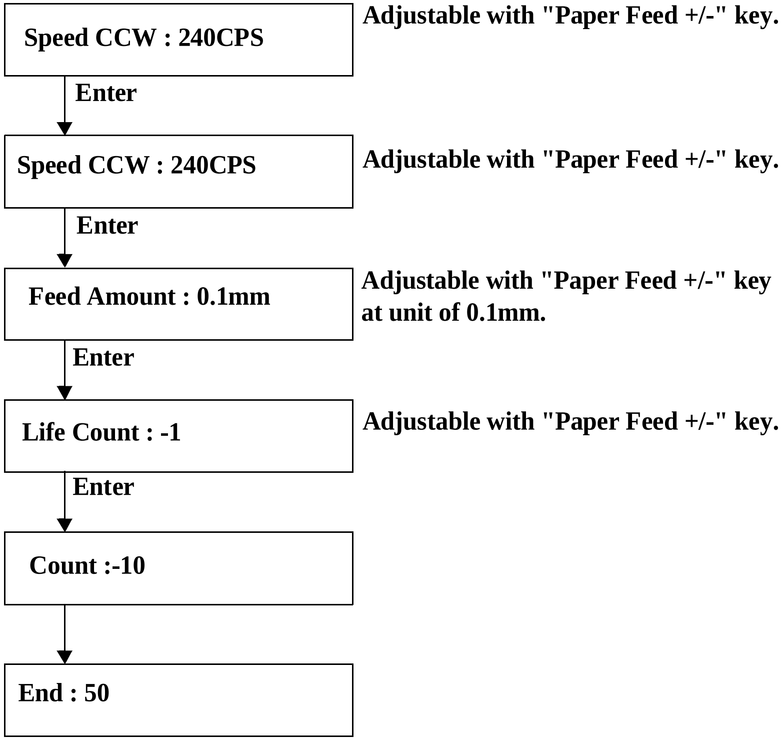
Perform the CR motor and the PF motor simultaneous reliability test.

The CR + PF motor is actuated designated number.

When the reliability number is [-1], reliability is repeated until key is input.

When the reliability number is [-1], the biggest count number is 99,999,999 times (within 8 column), and the count become 0 in the case that this is exceeded.

Following figure showing the CR + PF motor reliability test menu sequence.



Adjustable with "Paper Feed +/-" key.

Adjustable with "Paper Feed +/-" key.

Adjustable with "Paper Feed +/-" key at unit of 0.1mm.

Adjustable with "Paper Feed +/-" key.

Figure 5-100.

☐ As for the parameter of CW, [240CPS], [300CPS], [400CPS], and [800CPS] are possible select.

☐ As for the parameter of CCW, [240CPS], [300CPS], [400CPS], and [800CPS] are possible select.

☐ The maximum value of the paper feed is [100.0mm].

☐ The maximum value of the reliability number designation is [99,999,999 times].

☐ Carriage migration MAX location is 738.06 mm from the starting point location.

☐ Carriage migration MIN location is 111.05 mm from the starting point location.

☐ When the [Pause] key is pushed during the reliability test, the test can be broken.

5.3.8.4 Cutter

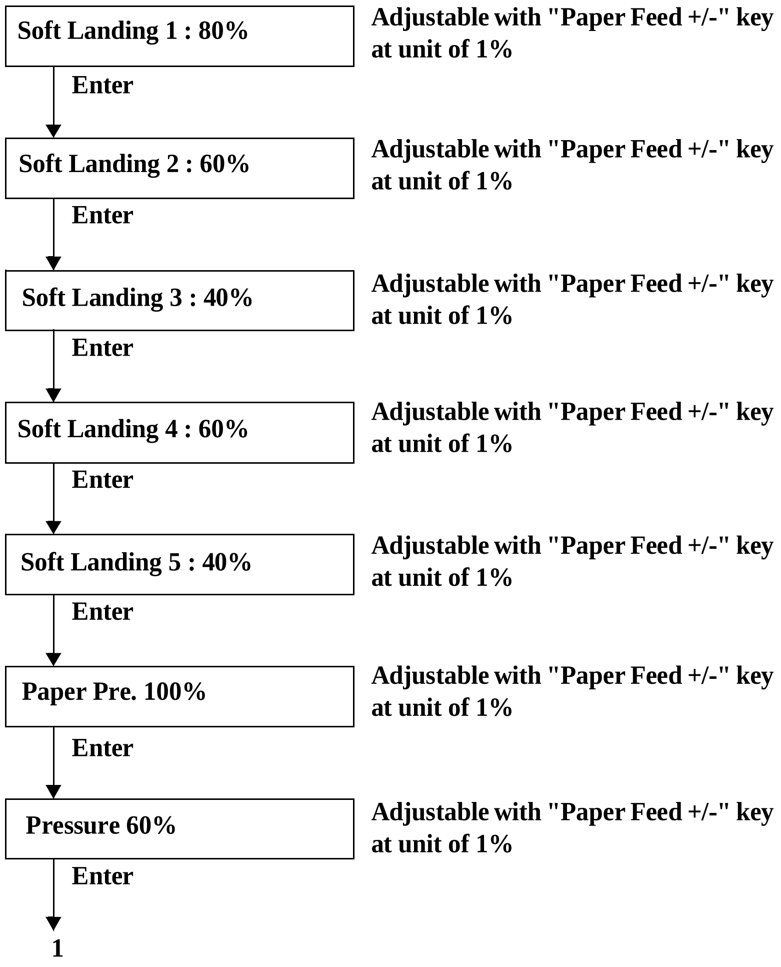
Perform the cutter reliability test.

Perform the cut designated number at designated parameter.

When the reliability number is [-1], reliability is repeated until key is input.

When the reliability number is [-1], the biggest count number is 99,999,999 times (within 8 column), and the count become 0 in the case that this is exceeded.

Following figure showing the cutter reliability test menu sequence.


Soft Landing 1 : 80%
Adjustable with "Paper Feed +/-" key at unit of 1%
Enter
Soft Landing 2 : 60%
Adjustable with "Paper Feed +/-" key at unit of 1%
Enter
Soft Landing 3 : 40%
Adjustable with "Paper Feed +/-" key at unit of 1%
Enter
Soft Landing 4 : 60%
Adjustable with "Paper Feed +/-" key at unit of 1%
Enter
Soft Landing 5 : 40%
Adjustable with "Paper Feed +/-" key at unit of 1%
Enter
Paper Pre. 100%
Adjustable with "Paper Feed +/-" key at unit of 1%
Enter
Pressure 60%
Adjustable with "Paper Feed +/-" key at unit of 1%
Enter
1

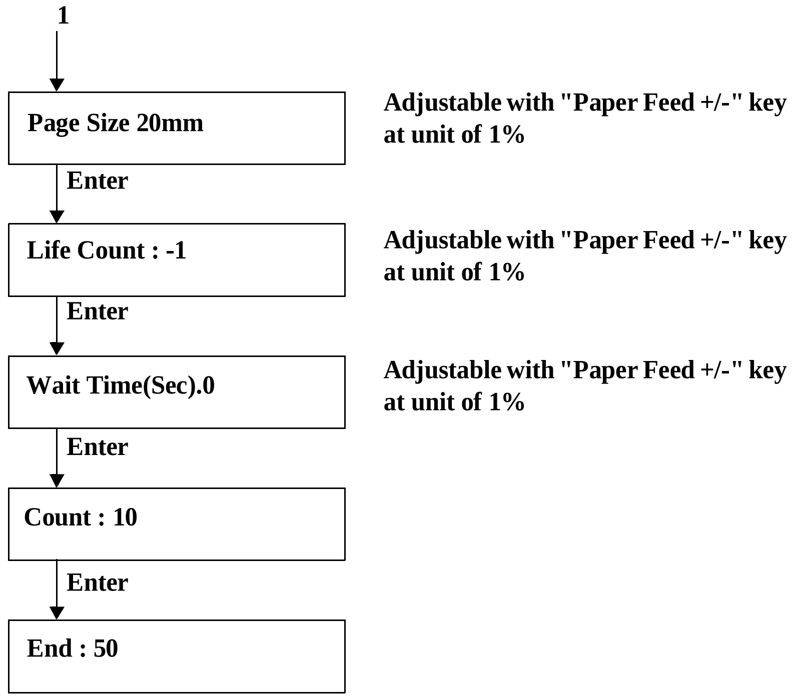

1
Page Size 20mm
Adjustable with "Paper Feed +/-" key at unit of 1%
Enter
Life Count : -1
Adjustable with "Paper Feed +/-" key at unit of 1%
Enter
Wait Time(Sec).0
Adjustable with "Paper Feed +/-" key at unit of 1%
Enter
Count : 10
Enter
End : 50

Figure 5-101.

- ☐ The maximum value of the page size is [3000mm].
- ☐ The maximum value of the reliability number designation is [99,999,999 times].
- ☐ The maximum value of the wait time is [999 seconds].
- ☐ There is the wait time that is designated whenever the cutter reliability test ends 1 time.

5.3.8.5 Head Up / Down

Perform the head up / down reliability test.

Perform the capping designated number.

When the reliability number is [-1], reliability is repeated until [Pause] key is input.

When the reliability number is [-1], the biggest count number is 99,999,999 times (within 8 column), and the count become 0 in the case that this is exceeded.

Moving the carriage and combine the meshing of the gear.

Following figure showing the head up / down reliability test menu sequence.

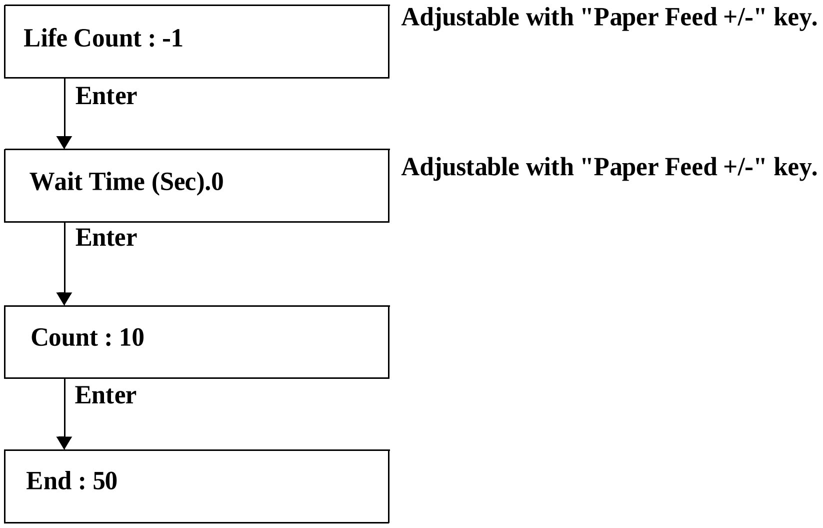

Life Count : -1
Adjustable with "Paper Feed +/-" key.
Enter
Wait Time (Sec).0
Adjustable with "Paper Feed +/-" key.
Enter
Count : 10
Enter
End : 50

Figure 5-102.

- ☐ The maximum value of the reliability number designation is [99,999,999 times].
- ☐ The maximum value of the wait time is [999 seconds].
- ☐ There is the wait time that is designated whenever the head up / down reliability test ends 1 time.

5.3.8.6 Head lock

Perform the head lock reliability test.

Perform the head lock (cancel / set) designated number.

When the reliability number is [-1], reliability is repeated until [Pause] key is input.

When the reliability number is [-1], the biggest count number is 99,999,999 times (within 8 column), and the count become 0 in the case that this is exceeded.

Following figure showing the head lock reliability test menu sequence.

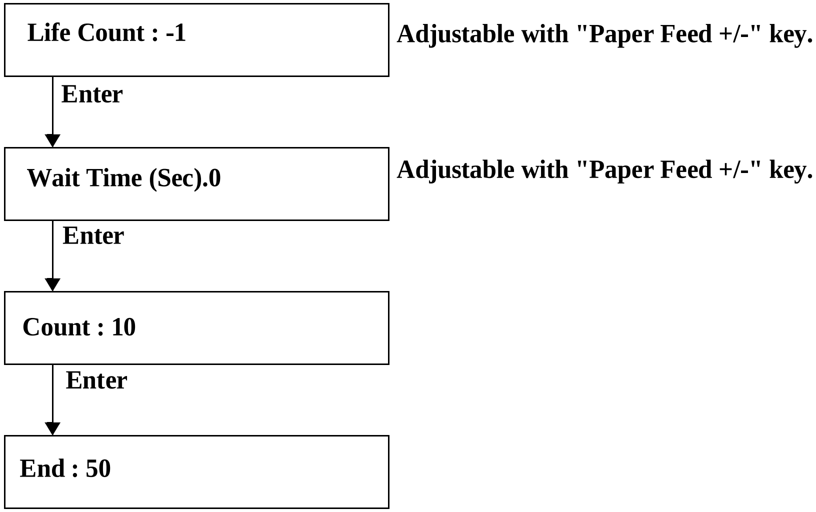

Life Count : -1
Adjustable with "Paper Feed +/-" key.
Enter
Wait Time (Sec).0
Adjustable with "Paper Feed +/-" key.
Enter
Count : 10
Enter
End : 50

Figure 5-103.

☐ The maximum value of the reliability number designation is [99,999,999 times].

☐ The maximum value of the wait time is [999 seconds].

☐ There is the wait time that is designated whenever the head lock reliability test ends 1 time.

5.3.8.7 Lever lock

Perform the lever lock reliability test.

Perform the lever lock (cancel / set) designated number.

When the reliability number is [-1], reliability is repeated until [Pause] key is input.

When the reliability number is [-1], the biggest count number is 99,999,999 times (within 8 column), and the count become 0 in the case that this is exceeded.

Following figure showing the lever lock reliability test menu sequence.

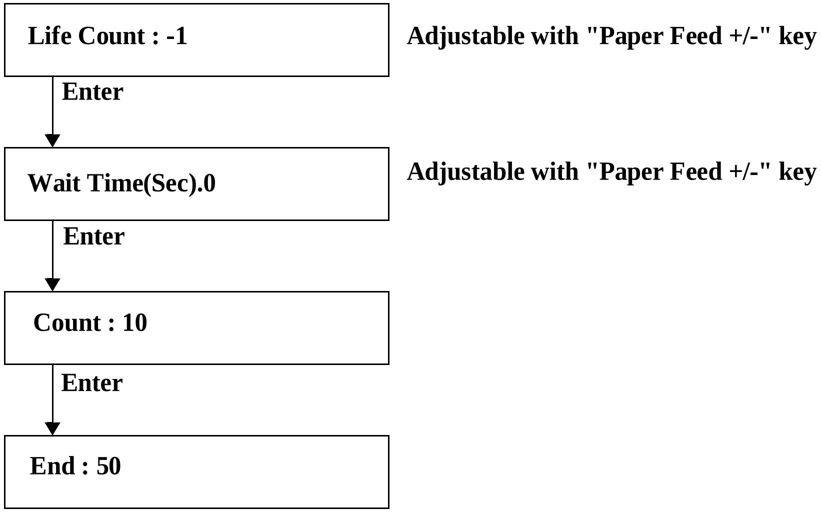

Life Count : -1
Adjustable with "Paper Feed +/-" key
Enter
Wait Time(Sec).0
Adjustable with "Paper Feed +/-" key
Enter
Count : 10
Enter
End : 50

Figure 5-104.

☐ The maximum value of the reliability number designation is [99,999,999 times].

☐ The maximum value of the wait time is [999 seconds].

☐ There is the wait time that is designated whenever the lever lock reliability test ends 1 time.

5.3.8.8 Cleaning

Perform the cleaning reliability test.

Perform the cleaning designated number.

When the reliability number is [-1], reliability is repeated until [Pause] key is input.

When the reliability number is [-1], the biggest count number is 99,999,999 times (within 8 column), and the count become 0 in the case that this is exceeded.

Following figure showing the cleaning reliability test menu sequence.

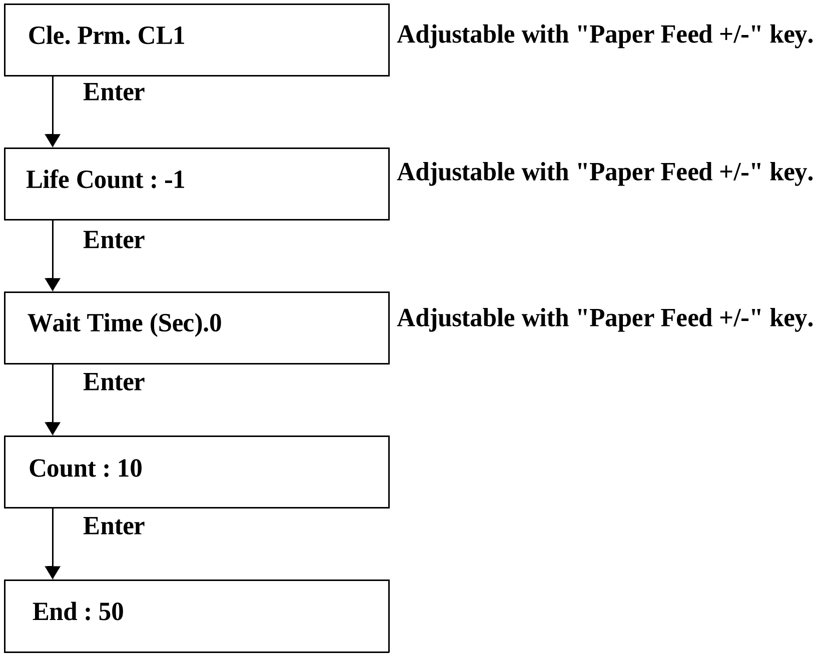

Cle. Prm. CL1
Adjustable with "Paper Feed +/-" key.
Enter
Life Count : -1
Adjustable with "Paper Feed +/-" key.
Enter
Wait Time (Sec).0
Adjustable with "Paper Feed +/-" key.
Enter
Count : 10
Enter
End : 50

Figure 5-105.

- As for the parameter of cleaning kind, [CL1], [CL1’], and [CL2] are possible select.
- The maximum value of the reliability number designation is [99,999,999 times].
- The maximum value of the wait time is [999 seconds].
- There is the wait time that is designated whenever the cleaning reliability test ends 1 time.

5.3.8.9 Print

Perform the print reliability test.

Perform the pattern print designated number.

When the reliability number is [-1], reliability is repeated until [Pause] key is input.

When the reliability number is [-1], the biggest count number is 99,999,999 times (within 8 column), and the count become 0 in the case that this is exceeded.

Following figure showing the print reliability test menu sequence.

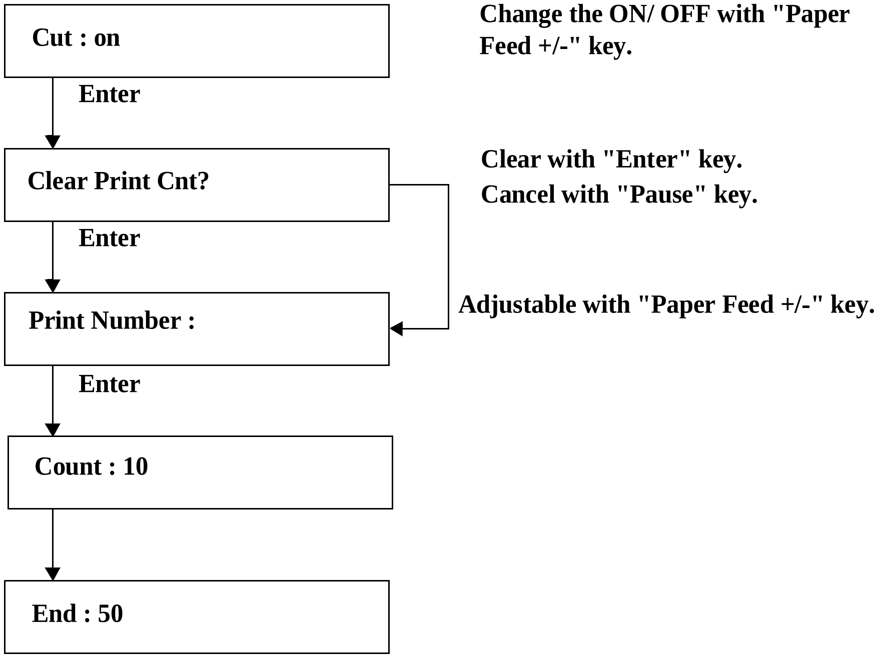

Cut : on
Change the ON/ OFF with "Paper Feed +/-" key.
Enter
Clear Print Cnt?
Clear with "Enter" key.
Cancel with "Pause" key.
Enter
Print Number :
Adjustable with "Paper Feed +/-" key.
Enter
Count : 10
End : 50

Figure 5-106.

- The maximum value of the reliability number designation is [99,999,999 times].

5.3.8.10 Shutter

Perform the shutter reliability test.

Perform the shutter actuation designated number.

When the reliability number is [-1], reliability is repeated until [Pause] key is input.

When the reliability number is [-1], the biggest count number is 99,999,999 times (within 8 column), and the count become 0 in the case that this is exceeded.

Following figure showing the shutter reliability test menu sequence.

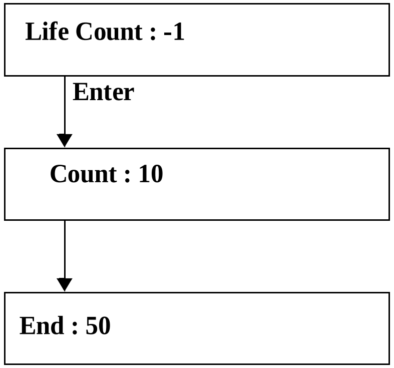

Life Count : -1
Enter
Count : 10
End : 50

Figure 5-107.

- Where the shutter is transited ("closing condition"-> "Half open condition" -> "Full open condition"), the reliability number is counted up of 1 time.
- The maximum value of the reliability number designation is [99,999,999 times].

5.3.8.11 Total reliability

Perform the CR axis (motor, bearing, tube etc.), the PF axis, the CR axis + the PF axis, the head up / down motor, the head lock, and the cutter solenoid simultaneous reliability test.

When the reliability number is [-1], reliability is repeated until [Pause] key is input.

When the reliability number is [-1], the biggest count number is 99,999,999 times (within 8 column), and the count become 0 in the case that this is exceeded.

Following figure showing the total reliability test menu sequence.

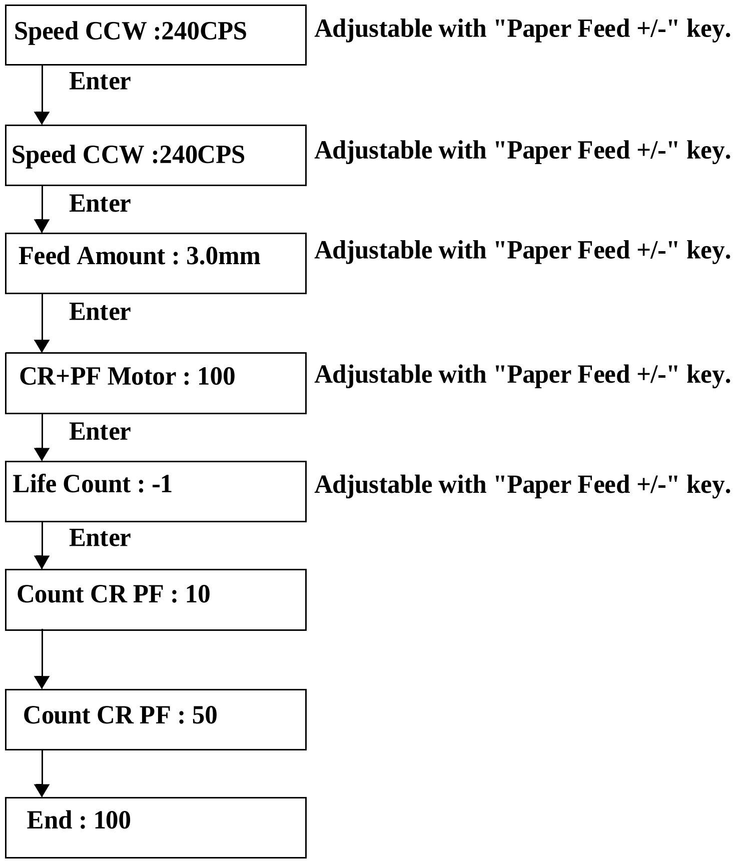

Speed CCW :240CPS
Adjustable with "Paper Feed +/-" key.
Enter
Speed CCW :240CPS
Adjustable with "Paper Feed +/-" key.
Enter
Feed Amount : 3.0mm
Adjustable with "Paper Feed +/-" key.
Enter
CR+PF Motor : 100
Adjustable with "Paper Feed +/-" key.
Enter
Life Count : -1
Adjustable with "Paper Feed +/-" key.
Enter
Count CR PF : 10
Count CR PF : 50
End : 100

Figure 5-108.

- As for the parameter of CW, [240CPS], [300CPS], [400CPS], and [800CPS] are possible select.
- As for the parameter of CCW, [240CPS], [300CPS], [400CPS], and [800CPS] are possible select.

- ☐ In the case that the parameter of CW is [off], the CCW parameter input screen is skipped.
- ☐ The maximum value of the paper feed is [100.0mm].
- ☐ The maximum value of the CR + PF reliability number is [999 times].
- ☐ The maximum value of the reliability number designation is [21,600 times].
- ☐ Carriage migration MAX location is 738.06 mm from the starting point location.
- ☐ Carriage migration MIN location is 111.05 mm from the starting point location.
- ☐ When the [Pause] key is pushed during the reliability test, the test can be broken.
- ☐ Following table showing the default value of total reliability test.

Table 5-23.

Item	Default value
CW speed	240 CPS
CCW speed	240 CPS
Feed amount	3.0mm
CR + PF count	500
Life count	-1

5.3.8.12 Life confirmation

Confirm the number of endurance.

You can confirm the endurance record any time because this record is storage in NVRAM.

Following figure showing the reliability number confirmation test menu sequence.

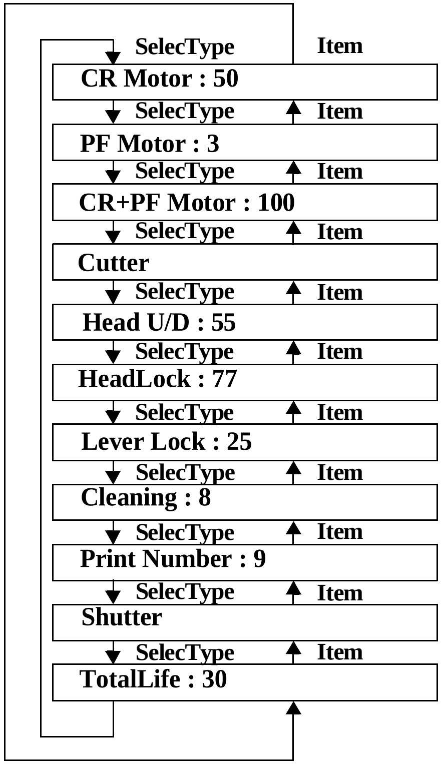

SelecType
Item
CR Motor : 50
PF Motor : 3
CR+PF Motor : 100
Cutter
Head U/D : 55
HeadLock : 77
Lever Lock : 25
Cleaning : 8
Print Number : 9
Shutter
TotalLife : 30

Figure 5-109.

CHAPTER

6

MAINTENANCE

6.1 General Maintenance Issues

This section explains necessary maintenance items and their details for this product. Basically for this product, service technicians are required to visit the user’s location where the EPSON Stylus Pro 10000/10000CF is used, and perform necessary maintenance/service on-site while following the precautions below. Service technicians have to be extra careful not to cause any accident to the product or the user’s environment.

WARNING

- **Since the power switch is mounted on the secondary circuit of the power supply circuit, unless otherwise specified, always turn off the printer using the power switch. After all moving parts have stopped, wait several seconds and then disconnect the power cable from the AC plug socket to prevent electric shock or circuit damage during service operations.**
- **The cover open sensor for detecting the open/close condition of the front cover has an interlock switch that functions as a safety device. Therefore, it is prohibited to turn off this switch.**
- **A lithium battery is installed on the C362DRV Board of this printer. Be sure to observe the following instructions when servicing the battery:**
    - Keep the battery away from any metal or other batteries so that electrodes of the opposite polarity do not come in contact with each other.
    - Do not mistake the polarity, when detachment and attachment.
    - Do not heat the battery or put it near fire.
    - Do not put the C362DRV board directly on the body that has electrical conductivity.
- **Be careful not to let ink get into your eyes or your skin. If ink gets in your eye, flush the eye with water, and see a doctor if you feel discomfort in your eye.**

CAUTION

- **Due to the printer’s size, when performing any service or maintenance operations, confirm there is plenty of space for the operation.**
- **Due to the printer’s size and weight, make sure any area you move the printer to or any surface you place the printer on is stable.**
- **Since the EPSON Stylus Pro 10000/10000CF is quite heavy (approximately 106 Kg for the printer body plus another 26 Kg for the stand), be careful when handling it. When separating or setting up the printer body and stand, you need four people.**
- **When removing parts, ink may drip on the floor or lower sections of the printer. Therefore, spread a sheet or similar object when removing ink-related parts.**
- **When handling the electric circuit boards, do not touch the elements on the board by your bare hands to prevent the elements from being damaged by static electricity. Wearing an earth band is highly recommended.**
- **If it is necessary to turn on the printer after removing various covers, be especially careful around the carriage and fans to avoid injury.**
- **Pay attention so as not to do the injury, because the cutter edge is very sharp.**
- **Keep in mind that the cutter blade is made of very hard material and may easily break if it contacts metal parts.**
- **If the printer needs to be transported for any reason, refer to the *Users Guide* to put the printer into printer-transport mode. Also, only use original packing materials and pack the printer as shown in the *Start-Up Guide* or *Assembly and Setup Guide*.**

6.1.1 Periodic Maintenance Items

The printer uses sensors and counters to determine when consumable items need to be replaced. When a consumable part has reached its predetermined end-of-life according to the corresponding counter, a message appears. See the table below for parts which require periodic replacement.

Table 6-1. Periodic Replacement Parts

Items	LCD Message	Description
Maintenance kit Stylus Pro 10000/10000CFC	“Maintenance Call 0100” or “Service Call 00000100 Time of display occurrence”	☐ Solution Replace the following parts with theparts in the Maintenance Kit; • Waste Ink Pads • Cap Pump Assembly • Flushing Box • Dot missing detector ☐ Enforcement necessary adjustmen Maintenance mode 2 of • Waste Ink Counter Clear • Cleaning Clear
Ink Tubes CR Motor	“Service Call 00000101” Time of display occurrence	☐ Solution Exchange the ink tube and CR motor. ☐ Enforcement necessaryadjustmen CR motor initialization of maintenance mode 2

CAUTION

When replacing the waste ink pads, replace the pads in the waste ink tank and not the whole tank. Put the old pads in a plastic bag and throw away the used ink pads according to the laws and rules in your area.

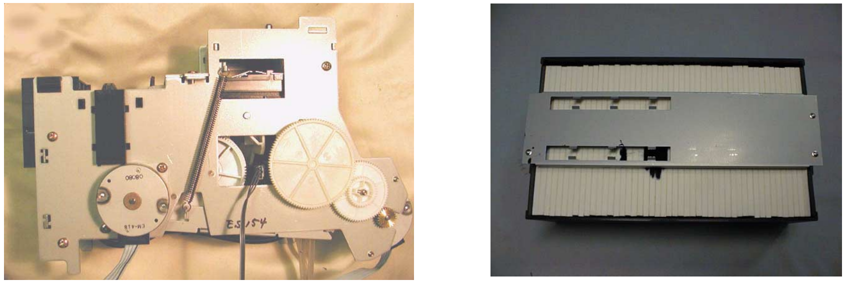
6.1.2 Product Life Information

The information regarding the life of the main body / each system department / part in this machine is shown in Table 6-2.

Table 6-2. Product Life Information

Items	Setting value	Notes	Error
Part life	20,000 pages / in 5 years	With B0 form	No
Print head	28 billion shot / in 5 years	Each nozzle	No
Maintenance kit (Waste Ink Pads, Flushing Box, Dot missing detector)	Waste Ink total of 660 g	B0 printing about 7000 sheets	Yes
CR Motor Ink tube	2,300,000 passes	1 pass =1 round trip *Ink tube life is monitored based on this counter value.	Yes
PF Motor	21,000 meter	PF action distance as the monitor	No
Cutter	About 2000 times (the film system form in the case of about 1000 times 1 sheet of form cut to every 1 counting	1 sheet of form cut to every 1 counting	No

Cleaning unit **Waste ink unit (pads)**



Dot missing detector **Flushing box**

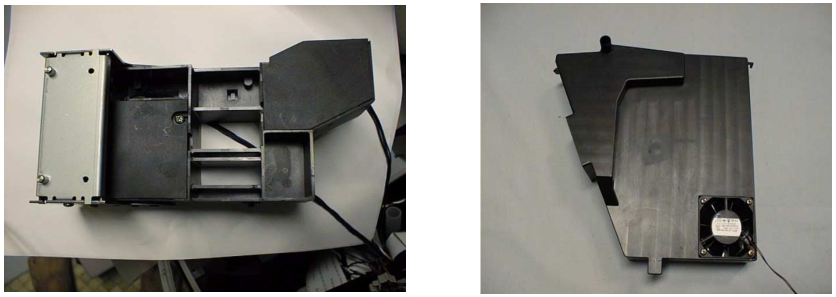


Figure 6-1.

6.1.3 Printing output at the time of maintenance

Printing of the nozzle checking pattern / status sheet

Do the panel switch operation shown below, after confirm that the LCD display of the operation panel is displayed "READY".

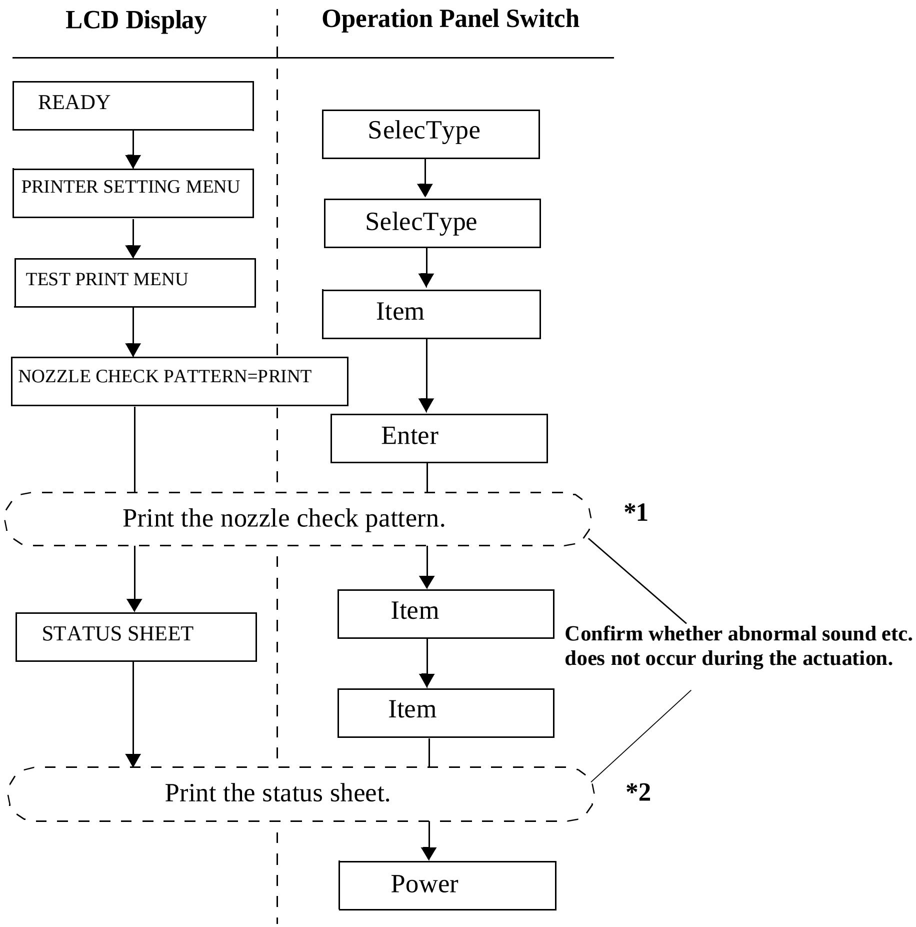

LCD Display
Operation Panel Switch
READY
SelecType
PRINTER SETTING MENU
SelecType
TEST PRINT MENU
Item
NOZZLE CHECK PATTERN=PRINT
Enter
Print the nozzle check pattern.
*1
STATUS SHEET
Item
Item
Confirm whether abnormal sound etc. does not occur during the actuation.
Print the status sheet.
*2
Power

Figure 6-2.

Wait until the power supply lamp turns off,then extract the AC power cable from the plug socket.

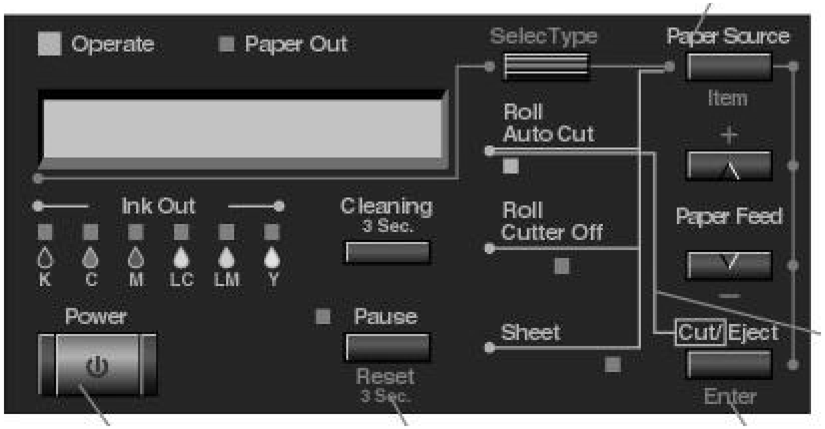
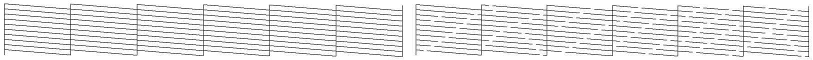


Figure 6-3.

*1 : Confirm that there are dot missing at the time of the nozzle checking pattern printing. In the case that the abnormality was admitted pushing the cleaning switch for 3 seconds, and the head cleaning (about 2 minutes : Until the printing passable lamp changes to the inspection from the flickering) is run. The nozzle checking tries to be run once again hereafter.



(Good example) (Bad example)

Figure 6-4.

*2 : Use the status sheet as for the confirmation of the part life (the exchange time) that showed in the Table 6 -2, because the status sheet prints the information that showed in the Table 6 -3.

Table 6-3. Status sheet

Item	Panel display	Setting value	Contents
Version of the firmware	VERSION	TOxxxx. yyyy .zzzz	The firmware version of the printer is displayed.
Before page ink used quantity	INK	xx.x g	The ink used quantity in the page that printed in immediately before is displayed.
Printing number of sheets (C).	PRINTABLE SHEET	xxxxxxx sheet	Whether is displayed additional how many sheets of printing possibility, on the basis of the ink used quantity in the page that printed it in immediately before every the ink. C : Cyan M : Magenta LC : Light cyan LM : Light magenta Y : Yellow K: Black
Printing number of sheets (M)	PRINTABLE SHEET		
Printing number of sheets (LC)	PRINTABLE SHEET		
Printing number of sheets (LM)	PRINTABLE SHEET		
Printing number of sheets (Y)	PRINTABLE SHEET		
Printing number of sheets (K)	PAGE COUNT		
Accumulation ink consumption volume	TOTAL INK	xxxxxxx.x g	The used quantity of the ink is displayed with "g" unit.
Accumulation paper consumption volume	PAPER COUNT	xxxxxxx cm	The length of the form that used it is displayed with "cm" unit.
Ink counter clear	INK COUNTER CLEAR	Run	The ink counter is initialized in 0. The consumption volume of the ink in an optional printed matter can be instrumented with [Ink counter] and [Ink counter clear].
Paper counter clear	PAPER COUNTER CLEAR	Run	The form counter is initialized in 0. The used quantity of the form in an optional printed matter can be instrumented with the [form counter] and [form counter clear].

Table 6-3. Status sheet

Item	Panel display	Setting value	Contents
Ink remainder quantity (K)	INK LEFT(K)	E*****F (*1)	The remainder quantity of the ink is displayed every the ink. C : Cyan M : Magenta LC : Light cyan LM : Light magenta Y : Yellow K: Black
Ink remainder quantity (C)	INK LEFT(C)		
Ink remainder quantity (M)	INK LEFT(M)		
Ink remainder quantity (LC)	INK LEFT(LC)		
Ink remainder quantity (LM)	INK LEFT(LM)		
Ink remainder quantity (Y)	INK LEFT(Y)		
Cutter life	CUTTER LIFE	E*****F (*1)	The life of the cutter is displayed. Cutter life be about 2000 sheets. (However in the case of film system form, about 1000 sheets.) The life information of the cutter is reference. Actually, judge from the piece condition.
Total printing number of sheets	TOTAL COUNT	nnnnnnn (Max 6 columns)	The number of sheets that printed it is displayed.
Waste ink counting	WASTE INK	E*****F (*1)	This item is the maintenance information that the service engineer uses the maintenance for the purpose. [Maintenance call 100] with the remainder quantity of 3% [Service call 000100] with the remainder quantity of 0%
CR motor life monitor	CR MOTOR		
PF motor life monitor	PF MOTOR		
Head unit life monitor	HEAD UNIT		
Cleaning unit life monitor	CLEANING UNIT		

*1 : The meaning of the command of the ink remainder quantity and cutter life are as follows. Refer to 4.2.1.2.

Table 6-4.

Display	Remainder quantity of the ink	Life of the cutter
E*****F	Ink full condition (Full)	There is a remainder life (Full)
E**** F	≀	≀
E*** F		
E** F		
E* F		Remainder life is little.
E F		End
NN%	Ink remainder quantity is little (The ink end lamp blinking) Ink low condition (10% or less of the remainder quantity)	* The life of the cutter is rough standard. When the cutter is exchanged, display becomes full condition.
0%	Ink end (The ink out indicator comes on)	

CAUTION

- **Do not carry out the counter initialization without necessary part exchange/inspection, although the counter initialize is possible with "the counter initialization menu" of "maintenance mode 2". (Especially, do not clear the counter of "Waste ink", "Ink remainder quantity" to the unpreparedness, to exert the influence on the product actuation.)**

6.2 Maintenance inspection items

Do the inspection and necessary treatment at the time of the service enforcement about the following item 1 - 8. About the ink leakage, wipe it once again with the cloth that dried after the wipes it with the cloth etc. that wetted.

1. Remove the power cable from the plug socket after turns off the power supply and the power supply lamp turn off, to carry out the inspection of the device department. Refer to 4.2.1.4.
2. Remove the roll paper and the cloth for paper receiving.
3. Remove the following part in reference to Chapter 4.
   - Panel unit (Refer to 4.2.1.1)
   - Paper set lever (Refer to 4.2.1.2)
   - R side cover (Refer to 4.2.1.4)
   - L side cover (Refer to 4.2.1.5)
   - I/C holder cover (Refer to 4.2.1.6)
   - H top cover (Refer to 4.2.1.3)
   - Carriage cover (Refer to 4.2.3.3)

1. Ink tube relation

1.1 Ink supply tube : The presence of the damage and transformation of the ink tube and ink leakage (trace is included) are confirmed. Wipe the ink leakage.

(1) Print head department : Remove 2 damper bracket mounting screw, and confirm following items. (Refer to 4.2.3.3)

☐ Is there ink leakage in the coupling part under the damper bracket?

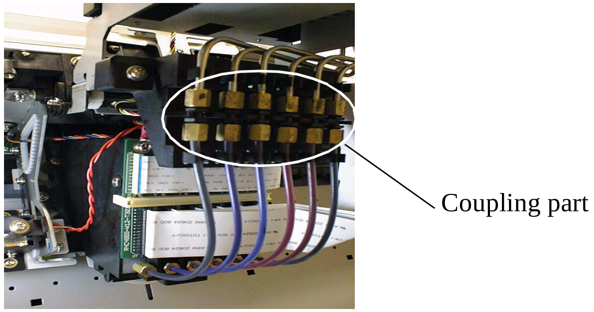


Figure 6-5.

☐ Is not the ink tube damaging in the damper bracket attachment department?

☐ Is there ink leakage in the coupling part of the sub ink tank and stainless steel pipe of the print head?

☐ Is there ink leakage in the tube joint department and also periphery department inside the print head?

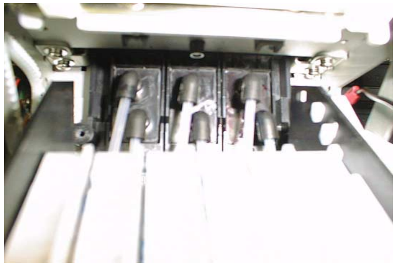


Figure 6-6.

* Attach the nut and the O-ring once again after remove the nut and exchange the O-ring, in the case that the ink leakage was discovered in the coupling department.

(2) The guide rail department / Ink cartridge holder department (Refer to 4.2.3.7)

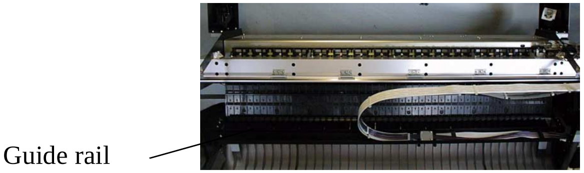


Figure 6-7.

☐ Are not the ink tube and flat cable from the damper bracket department to guide rail right edge of the print head department damaging it? Is there ink leakage also?

☐ Are there the damage of ink leakage and ink tube in the coupling department from the guide rail right edge?

☐ Is there ink leakage in the coupling department on the ink cartridge holder?

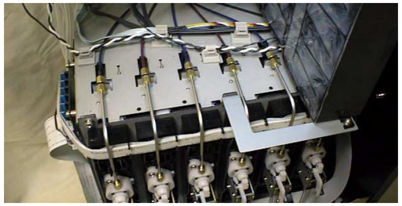


Figure 6-8.

1.2 Waste ink tube : Are there a damage and ink leakage in the tube that is jointed to the waste ink tank from the cleaning unit and flushing box?

(1) Cleaning unit (Refer to 4.2.3.12)

☐ Are there ink leakage and damage in 3 ink tubes and thick tube?

☐ Are 3 waste ink tubes fixed to the clamp on the flushing box?

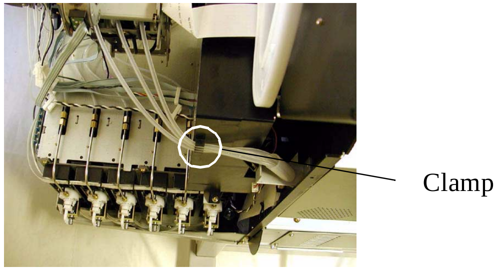


Figure 6-9.

☐ Is there sag (part that is low more the clamp location) in the waste ink tube between the cleaning unit and flushing box?

☐ Are 3 waste ink tubes plugged to the thick tube that is jointed to the waste ink tank completely? (there is not sag and also the thick tube shall be lower than the clamp location on a flushing box.)

(2) Flushing box

☐ Is there ink leakage in the attachment department of the thick tube where is jointed to the lower part of the flushing box?

☐ Is not the filter inside the flushing box (new article is white) getting dirty and clogging?

1.3 Waste ink tank : Remove the waste ink cover and confirm the following items. (Refer to 4.2.3.1)

☐ Are 2 waste ink tubes fixed to the tube clamp?

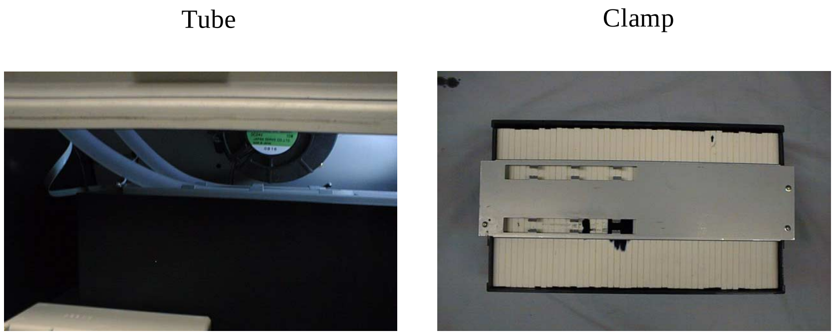


Figure 6-10.

☐ Are there the damage and ink leakage of 2 waste ink tubes?

☐ Is there ink leakage (overflow) from the waste ink tank?

2. Ink system device

2.1 Dot missing detector / Cleaning unit : The carriage locking is canceled and the carriage migrate to the left side, then confirm these units. Wipe the ink dirt. (Refer to 4.2.3.12)

☐ Is there ink dirt in the window and also periphery department of the dot missing detector?

☐ Is there ink dirt in the bottom of the cleaning unit (the absorption material attachment department)?

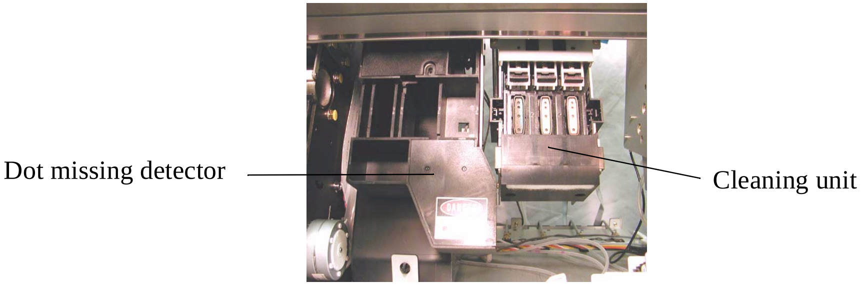


Figure 6-11.

☐ Is not the piece of paper etc. adhering to the cap ink pad and also 3 caps (grey rubber)?

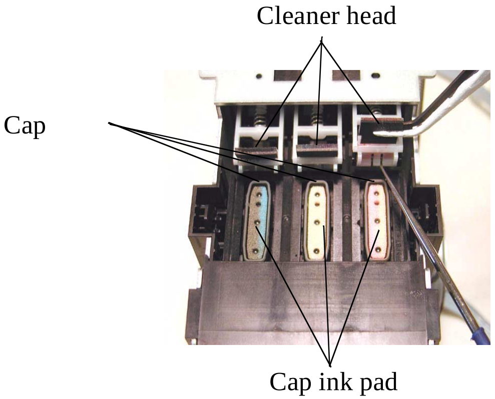


Figure 6-12.

☐ Is there the dirt of paper powder etc. in 3 sheets of vacuum cleaner heads of the cleaning units?
*Wipe the dirt of the cleaning unit with the cloth that do not occur fuzz or paper.

2.2 Air tube : Confirm the air tube and compressor department that are jointed to ink pump Assy. (Refer to 4.2.3.16)

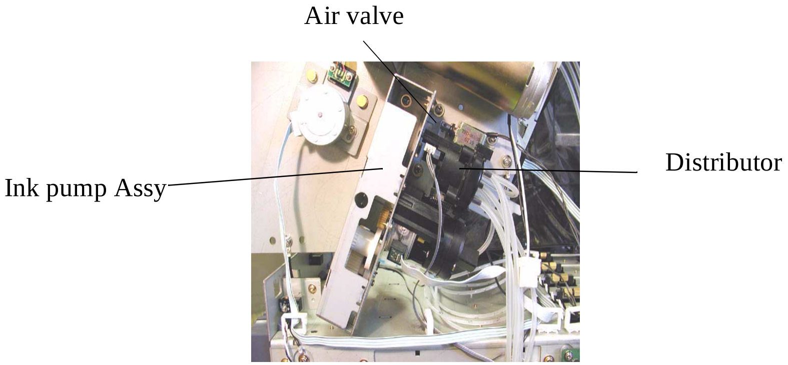


Figure 6-13.

- ☐ Is there come off and the crack in the air distributor on ink pump Assy (7), air valve (1) and the tube (6) that is jointed to the ink holder?
- ☐ Are there transformation and damage in the air tube?
- ☐ Does the solenoid of the air valve (the valve without the pressure) work smoothly?
- ☐ Is not the inside of the air tube getting dirty?

2.3 Ink holder / Slot : (Refer to 4.2.3.7)

- ☐ Is there ink leakage in the lower part of the ink cartridge attachment department?
- ☐ Does the ink valve solenoid on each ink holder work smoothly?

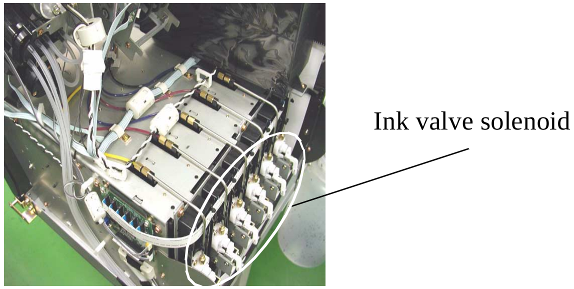


Figure 6-14.

3. Carriage device

3.1 Carriage actuation : Confirm the carriage actuation with manually moving.

- ☐ Does the carriage work smoothly right and left?
- ☐ When the carriage is run until against the left side, Are there the adhesion of dirt and foreign substance in 4 bearing roller that are in the upper side of a carriage and the bearing roller rail that is attaching to the CR guide rail?
- ☐ Are there damage and dirt in the T fence (scale 180a)?
- ☐ Are not the T fence and carriage return encoder contacting?

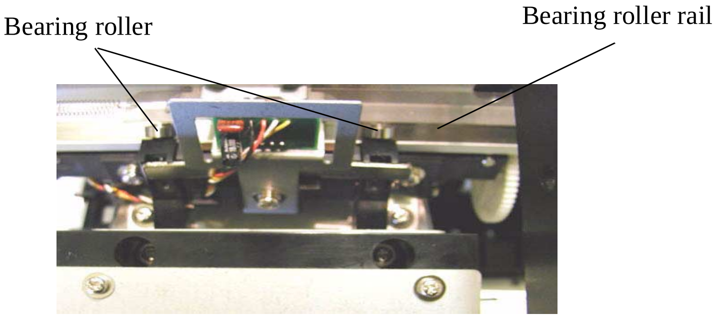


Figure 6-15.

3.2 Cutter : Confirm the cutter solenoid actuation with manually pushing. (Refer to 4.2.3.4)

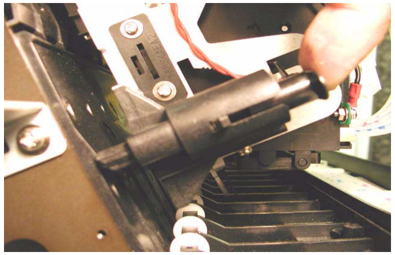


Figure 6-16.

☐ Removing the cutter edge, then confirm whether the edge of blade gets dirty and also the piece of paper etc. be not adhering.

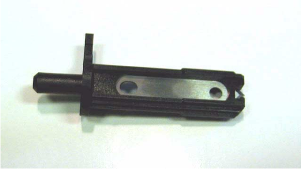


Figure 6-17.

☐ Does the cutter solenoid work smoothly?

☐ Confirm whether pushes against the cutter solenoid and the edge of a blade be locatedding to the ditch of paper guide L2. (Slowly moving the carriage right and left it confirms in both ends. Gap with the ditch be the range of 0.3 - 0.7 mm)

3.3 CR motor / Steel belt : Confirm the carriage actuation with manually moving.

☐ While seeing the CR driven pulley moving the carriage that the steel belt always is at the center of a pulley is confirmed. Even that there are not dirt and abrasion in the steel belt and pulley confirms.

☐ Is there looseness in 2 screw that are fixing the steel belt to the carriage?

☐ Is there looseness in the set screw of the bearing stopper that is attached to the CR motor?

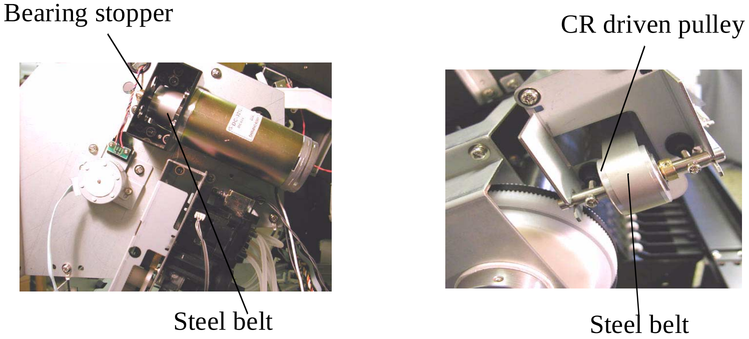


Figure 6-18.

4. Forms tractor

4.1 PF motor : Confirm the PF motor actuation with manually revolving. (Refer to 4.2.3.10)

☐ Are there abrasion and looseness in the belt between the PF motor and slowing-down gear?

☐ Is there abrasion in the gear (aluminum) that is attached to the PF motor axis?

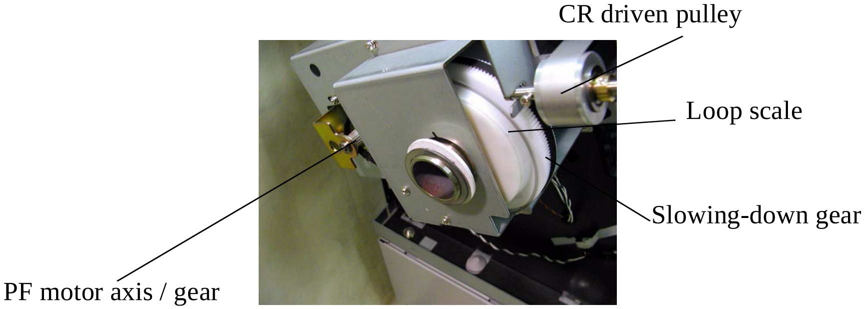


Figure 6-19.

- ☐ Is not the piece of paper etc. adhering to the slowing-down gear?
- ☐ Is the belt locatedding in the center of the slowing-down gear? (The belt is same location even if the PF motor is revolved positive revolution or reverse revolution.)

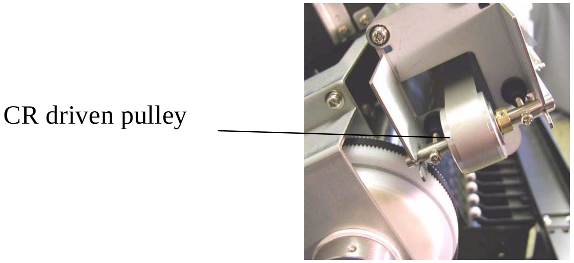


Figure 6-20.

4.2 PF roller : Confirm the PF roller in the condition which the paper release lever is pulled in the front (unlock condition).

- ☐ Are not the dirt of the ink and paper powder etc. adhering to the PF roller?
- ☐ Is there ink dirt in the sub platen?

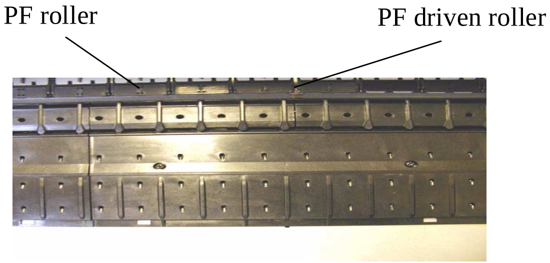


Figure 6-21.

- ☐ Are not the dirt of the ink and paper powder etc. adhering to the PF driven roller (Total of 128 pieces : each 4 pieces the installation to 32 holders)?
  * Wipe the ink dirt with the cloth that wetted.
  * Clean the paper powder with the brush.

- ☐ Is not the dirt adhering to 3 support bearings of the PF rollers?

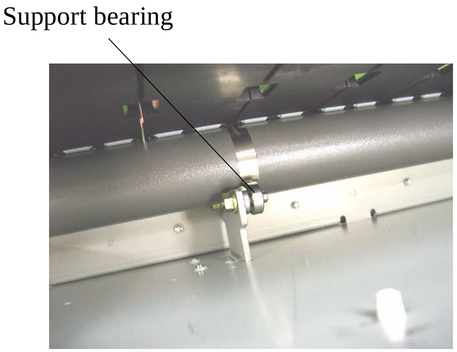


Figure 6-22.

- ☐ Is not the dirt adhering to the PF loop scale?

5. Form conveyance path

- ☐ Is there the dirt of paper powder etc. in the Paper guide U?

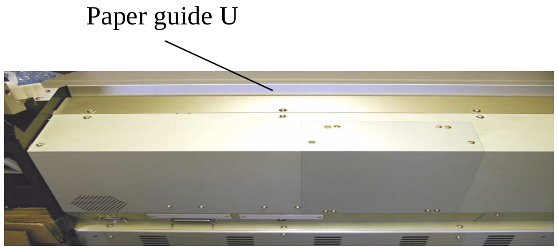


Figure 6-23.

- ☐ Are there the dirt of a cutter damage and paper powder etc. in the ditch periphery department of the sub platen? (Refer to 4.2.3.2)

☐ Is there ink dirt in the sub platen?

☐ Is not the dust etc. clogged to the hole of the sub platen (vacuum hole)?

☐ Are not the dirt and paper powder adhering to the sub platen?

6. Sensor / Encoder

Confirm whether there is not the adhesion etc. of a piece of paper in the next sensor / encoder department. The dirt is removed with the air blower etc. in the case that the dirt was discovered.

☐ CR encoder (Refer to 4.2.3.5)

☐ P_Edge sensor (Refer to 4.2.3.6)

☐ PF encoder (Refer to 4.2.3.11)

☐ Slide home sensor (Refer to 4.2.3.19)

☐ CR_HP sensor (Refer to 4.2.3.21)

☐ Paper release sensor (Refer to 4.2.3.22)

☐ P_FRONT sensor (Refer to 4.2.3.23)

☐ P_REAR sensor (Refer to 4.2.3.24)

☐ P_THICK sensor (Refer to 4.2.3.27)

☐ Shutter home sensor (Refer to 4.2.3.19)

☐ Cap sensor (Cap / Pump unit)

☐ Pressure sensor / Carriage locking sensor (Ink pump Assy)

7. Cover open detection switch

Confirm whether the next switches are actuated with the open and close of the cover. (It is not caught, and there is over throw.)

☐ Front cover detection switch L/R

☐ I/C holder cover switch

8. Suction fan

When the noise of the fan big or the form does not stick to Paper guide L2, remove the dirt of 3 pieces of suction fan and periphery department in reference to 4.2.3.2.

CHAPTER 7

APPENDIX

7.1 Wiring Diagrams

The following illustration shows the connection between the printer mechanism and the electrical circuits.

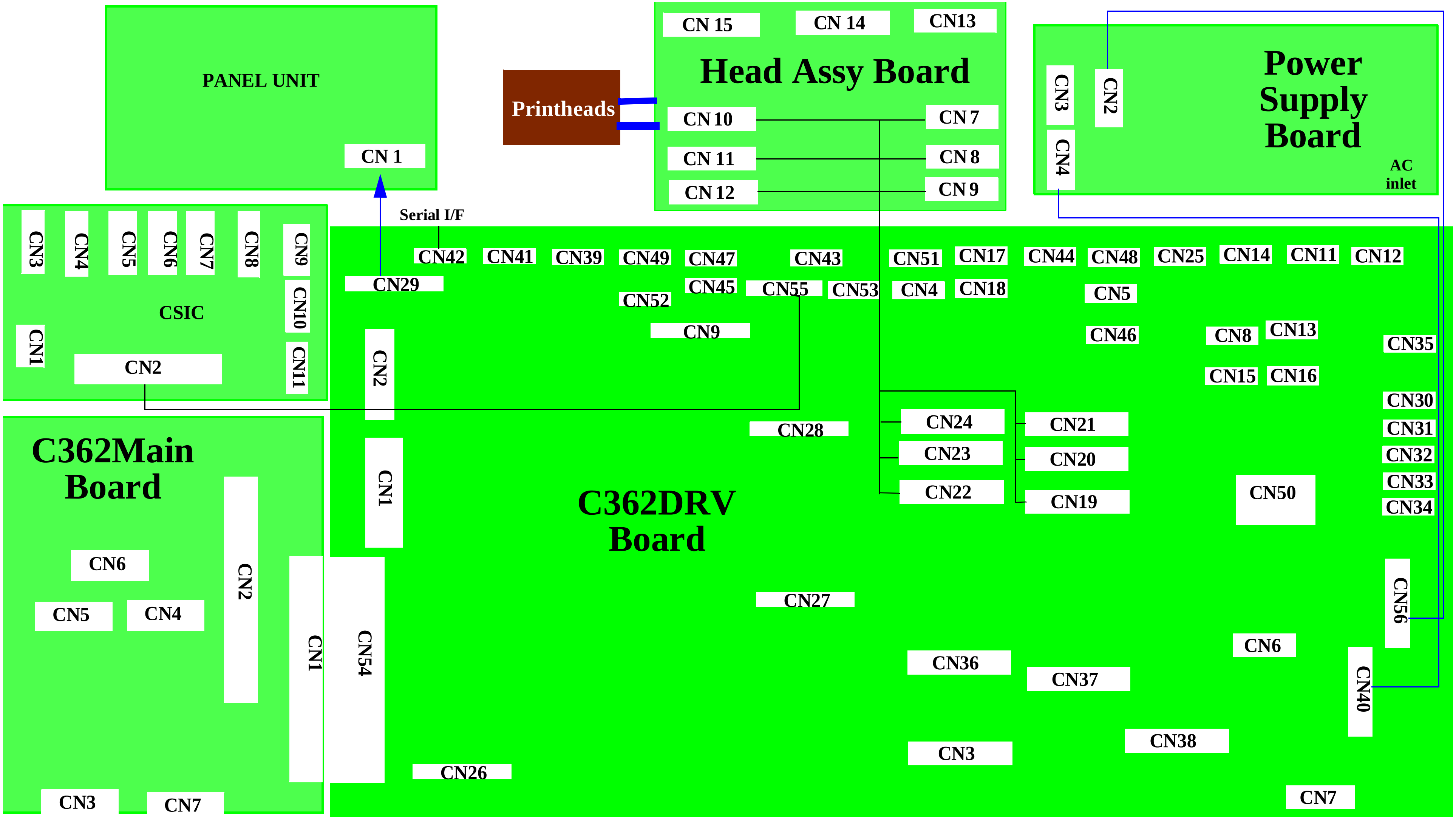

PANEL UNIT
CN 1
Printheads
CN 15
CN 14
CN13
Head Assy Board
CN 10
CN 11
CN 12
CN 7
CN 8
CN 9
CN3
CN2
CN4
Power Supply Board
AC inlet
Serial I/F
CN3
CN4
CN5
CN6
CN7
CN8
CN9
CN10
CN11
CSIC
CN1
CN2
CN42
CN41
CN39
CN49
CN47
CN43
CN51
CN17
CN44
CN48
CN25
CN14
CN11
CN12
CN29
CN45
CN52
CN55
CN53
CN4
CN18
CN5
CN9
CN46
CN8
CN13
CN35
CN2
CN15
CN16
CN30
CN28
CN24
CN21
CN31
CN23
CN20
CN32
CN1
CN33
CN22
CN19
CN50
CN34
C362DRV Board
C362Main Board
CN6
CN5
CN4
CN2
CN1
CN54
CN27
CN56
CN6
CN36
CN37
CN40
CN38
CN3
CN26
CN7
CN3
CN7

Figure 7-1. EPSON Stylus Pro 10000/10000CF Wiring Diagram

Table 7-1. C362DRV Board Connectors

Connector #	Pins	Color	Connection
CN4	3	3 (Black / Grey / White)	Front Cover Sensor Assy R
CN5	3	3 (Black / Grey / White)	Front Cover Sensor Assy L
CN6	2	2 (White / Black)	CR Motor
CN7	3	2 (White / Black)	PF Motor
CN8	5	4 (Yellow / White / Red / Black)	PF Encoder
CN11	4	Grey FC	Supply System Motor
CN12	4	Grey FC	Pump Motor
CN13	4	Grey FC	Cap Motor
CN14	4	4 (Yellow / White / Red / Black)	Suction Control Motor
CN15	4	4 (Yellow / White / Red / Black)	PG Motor
CN17	4	4 (Black)	Dot Missing Detector
CN18	7	7 (Black)	Dot Missing Detector
CN19	-	White FPC	Head Assy Board CN9
CN20	-	White FPC	Head Assy Board CN8
CN21	-	White FPC	Head Assy Board CN7
CN22	-	White FPC	Head Assy Board CN12
CN23	-	White FPC	Head Assy Board CN11
CN24	-	White FPC	Head Assy Board CN10
CN25	3	2 (Black)	Ink Ready Plunger
CN26	68	-	Option Card Installation (TBD)
CN29	-	White FPC	Head Assy Board CN1
CN30	3	2 (Red / Black)	P/S Fan
CN31	2	2 (Red / Black)	P/S Self-containing Fan
CN32	2	2 (White / Black)	Suction Fan
CN33	2	2 (White / Black)	Suction Fan
CN34	2	2 (White / Black)	Suction Fan

Table 7-1. C362DRV Board Connectors

Connector #	Pins	Color	Connection
CN35	3	2 (Red / Black)	Dot Missing Detector
CN36	2	2 (Red / Black)	Heat Sink Fan 1
CN37	2	2 (Red / Black)	Heat Sink Fan 2
CN38	2	2 (Red / Black)	Heat Sink Fan 3
CN40	12	11 (Red2 / Black3 / White1 / Orange1 / Brown2 / Yellow2)	Power Board CN4
CN42	10	10 (Orange2 / White1 / Grey2 / White1 / Yellow2 / Pink2)	Serial Port
CN43	5	3 (Red / Blue / Orange)	CR_HP Sensor
CN44	4	4 (Red / Blue /Black / Orange)	P_Rear Sensor Assy
CN45	5	3 (Red / Blue / Orange)	Paper Ready Sensor
CN46	4	4 (Red / Blue /Black / Orange)	P_Front Sensor Assy
CN47	5	3 (Red / Blue / Orange)	P_Thick Sensor
CN48	5	3 (Red / Blue / Orange)	Suction Location Detect Sensor
CN50	2	2 (Red / Black)	Paper Hold Solenoid
CN52	4	4 (Red / Blue /Black / Orange)	Head_Slide Sensor Assy
CN54	-	White FPC	C362MAIN Board
CN55	-	White FPC	CSIC Board CN2
CN56	3	3 (Red / Orange / Black)	Power Board CN2

NOTE: ** CN1, CN2, CN3, CN9, CN16, CN27, CN28, CN39, CN41 be unuse.*
** CN49, CN51, CN53 are connector non-packaging only the pattern.*
** Black line side of FC is 1 pin.*

7.2 Parts Reference List

Table 7-2. Parts Reference List

Ref No.	Sales Part Code	Description
181	1062373	LOGO PLATE 13X54
182	1063447	"LABEL,MODEL NAME"
184	1063520	"LABEL,PAPER LEVER SET UP;B"
185	1063521	"LABEL,HAND POSITION;B"
186	1063446	"LABEL,INK COLOR"
187	1063518	"LABEL,PAPER JAM/CUTTER CHANGE;B"
188	1063515	"LABEL,ROLL PAPER SET;B"
189	1063517	"LABEL,BOARD PAPER SET;B"
190	1063516	"LABEL,CUT PAPER SET;B"
191	1063708	"LABEL,CUT POSITION"
192	1063522	"LABEL,CAUTION,STEEL BELT;B"
193	1063523	"LABEL,CAUTION,CUTTER;B"
194	1063519	"LABEL,CUTTER CHANGE 2;B"
195	1054689	"LABEL,ROLL PAPER SET,2;C"
197	1063710	"LABEL,PAPER EJECT CLOTH SET;B"
200	2036956	"BOARD ASSY., MAIN"
250	2036958	"BOARD ASSY., DRV"
300	2047869	P/S BORAD ASSY
400	2032091	P/S CABLE(EAI 120V)
101	1053493	RUBBER FOOT
102	2047847	VACUUM FAN ASSY
103	2047848	VACUUM FAN 1 CABLE ASSY
104	2047849	VACUUM FAN 2 CABLE ASSY
105	2047853	P REAR SENSOR ASSY

Table 7-2. Parts Reference List

Ref No.	Sales Part Code	Description
106	1063147	SENSOR BASE PR
107	1063162	PAPER GUIDE U
108	2047850	VACUUM FAN 3 CABLE ASSY
109	1071281	HANDLE
110	1071282	HANDLE
111	1063154	SUB PLATEN
112	1063161	PAPER GUIDE L
113	1054277	PAPER GUIDE TRAY
114	1059697	PAPER GUIDE
115	1063164	PROUSPAD
116	1058991	"POROUS PAD,INK EJECT"
117	1063163	WASTE INK TANK
118	1063145	EDGE SADDLE
119	1063148	GROMMET
120	1063146	WIRE LOCK SADDLE
121	1071263	AIR SHILED B
122	1071276	I/H COVER STOPPER
151	2047851	PF MOTER ASSY
152	1063159	ROLL SUPPORT L ASSY
153	1063160	ROLL SUPPORT R ASSY
154	1063153	PF BELT
155	2047852	PF MOTER CABLE ASSY
156	1063172	ONE TOUCH BUSH
157	1063149	TYPE(PF-SCALE)
158	1060843	"SCALE,PF"
159	1063150	PF-SCALE SUB BOARD

Table 7-2. Parts Reference List

Ref No.	Sales Part Code	Description
160	1063139	ROLL DAMPER L ASSY
161	1063140	ROLL DAMPER R ASSY
162	1063151	SLIT GUIDE
163	1063143	LEVER LOCK SPRING
164	1063142	HEAD LOCK SOLENOID
165	2047846	"LL,SOLENOID JANCTION CABLE"
166	1063165	WASTE INK TUBE 1
167	1063166	WASTE INK TUBE 2
168	2047855	MIST FAN CABLE ASSY
169	1063144	POST HEAD ASSY
170	1058988	"BOX ASSY.,FLUSHING"
171	2035504	"BOARD ASSY.,ENCODER"
172	2047854	PF ENC CABLE ASSY
173	1063170	CABLE CLAMP
174	1071272	GROMMET
175	1063169	FCC CLIP
176	1071250	FG CLAMP
177	2049619	SHATTER MOTOR ASSY
178	1071264	LEVER LOCK
301	F086010	PRINT HEAD SET
302	1063216	CUTTER SOLENOID ASSY
303	2047885	P EDGE SENSOR ASSY
304	1030787	"COMPRESSION SPRING,9.9"
305	1063203	HEAD ADJUSTOR BOARD A
306	1063202	HEAD ADJUSTOR BOARD B
307	1063201	ECCENTRIC SHAFT GEAR

Table 7-2. Parts Reference List

Ref No.	Sales Part Code	Description
308	1063204	HEAD ADJUSTOR SPRING
309	1063205	SCREW CAP
310	2047864	FG CABLE
311	1063206	HEAD STOPPER
312	2047884	CR ENC ASSY
313	1063217	CUTTER HOLDER
314	1063220	SOLENOID SPRING
315	1063219	CUTTER SOLENOID
316	1063222	CUTTER SPRING
317	1063218	CUTTER CAP
318	1063196	PG ADJUSTOR LEVER L
319	1063197	PG CAM SHAFT SPEASER
320	1063198	SLIDE ECCENTRIC CAM
321	1063199	PG ADJUSTOR LEVER R
322	1063200	PG DRIVEN GEAR
323	2047886	FG CABLE
351	1063193	PRESS LEVER SHAFT
352	1063190	PRESS LEVER GEAR
353	1063192	PRESS LEVER
354	1063191	PRESS LEVER SPRING
355	2047865	CR MOTER ASSY
356	1063186	CR DRIVEN PULLEY ASSY
357	1063187	STOPER RUBBER
358	1063188	TIMING FENCE SPRING
359	2047883	PRESS LEVER SENSOR CABLE ASSY
360	2047881	CR ORIGIN SENSOR CABLE ASSY

Table 7-2. Parts Reference List

Ref No.	Sales Part Code	Description
361	2047882	P THICK SENSOR CABLE ASSY
362	2047866	CR MOTER CABLE ASSY
363	1063194	DETECTOR ARM ASSY
364	1063195	STEEL BELT ASSY
365	2047868	PHOTO SENSOR
366	1071261	FERRITE CLAMP
401	2047871	P FRONT SENSOR ASSY
402	1063174	SHUTTER GEAR1
403	1063175	SHUTTER GEAR2
404	1063176	SHUTTER GEAR3
405	1063178	SHUTTER SPRING
406	1063177	SHUTTER CAM
407	1063173	SHUTTER
408	2047872	SHUTTER SENSOR CABLE ASSY
409	1063179	AIR SHILED D
410	1063180	AIR SHILED E
411	1063168	POST HEADER ASSY
412	2047861	P FRONT JANCTION CABLE
451	1063171	SLIDE MOTER BOARD ASSY
452	1058924	"PUMP ASSY.,SUPPLY"
453	1063172	ONE TOUCH BUSH
454	1058974	"DETECTOR ASSY.,DOT"
455	1059030	PUMP CAP UNIT ASSY.
456	2047870	SLID SENSOR ASSY
457	2047863	FG CABLE
501	1063182	I/C BOARD SPRING

Table 7-2. Parts Reference List

Ref No.	Sales Part Code	Description
502	1063183	I/C LEVER KNOB
503	2047873	I/H COVER SWITH ASSY
504	2036775	"BOARD ASSY.,CSIC"
505	2047880	CSIC FFC
506	2047874	K CARTRIDGE FFC
507	2047875	C CARTRIDGE FFC
508	2047876	M CARTRIDGE FFC
509	2047877	LC CARTRIDGE FFC
510	2047878	LM CARTRIDGE FFC
511	2047879	Y CARTRIDGE FFC
512	1058958	"HOLDER ASSY.,IC"
513	1063181	MINI LATCH
514	1063184	CKS CLAMP
515	1058973	"TUBE,IC"
516	1071260	FLAT CORE
517	1071258	FERRITE CLAMP
518	1071253	FG CLAMP
519	1071256	FERRITE CLAMP
601	1058967	"TUBE,SUPPLY,INK,B"
602	1058968	"TUBE,SUPPLY,INK,C"
603	1058972	"TUBE,SUPPLY,INK,LC"
604	1058970	"TUBE,SUPPLY,INK,LM"
605	1058969	"TUBE,SUPPLY,INK,M"
606	1058971	"TUBE,SUPPLY,INK,Y"
607	2047887	CR FFC1
608	1063208	TUBE FILME

Table 7-2. Parts Reference List

Ref No.	Sales Part Code	Description
609	1063207	SUS SUPPORT
610	2047888	CR FFC2
611	1033482	"JOINT SCREWS,M6"
612	1033483	"O RING,TUBE FASTEN"
613	1033481	"JOINT,BK"
614	1063210	"FILME,FFC,STOPPER"
615	1063209	"FILME,TUBE,STOPPER"
616	1063213	CABLE STOPPER
617	1063211	TUBE PROTECTION
618	1063215	"TUBE,PIPE STOPPER"
619	1063156	OUTLET ROLLER BOARD ASSY
620	1063157	TUBE BINDER
621	1063155	CABLE GUIDE BOARD
701	1011863	"GROUNDING PLATE,I/F,UPPER"
702	2047859	P/S C CABLE ASSY
703	2047862	ROLL-UP JANCTION CABLE
704	2048506	FAN ASSEMBLY
705	1063240	HJHK FG BOARD SPRING
706	2047860	DC CABLE ASSY
707	2047857	COOLING FAN 1 CABLE ASSY
708	2047858	COOLING FAN 2 CABLE ASSY
709	1059700	FAN DUCT
710	1071273	COOLING FAN SHELE
711	1060652	"SHIELED PLATE,1"
712	1060653	"SHIELED PLATE,2"
713	2036963	"BOARD ASSY.,SUB"

Table 7-2. Parts Reference List

Ref No.	Sales Part Code	Description
801	1063231	H TOP COVER
802	1063237	ROLL SIDE R COVER
803	1063223	S.E PROTECTION BRASH
804	1063224	CATCH
805	1063234	ROLL SIDE L COVER
806	1063232	FRONT COVER
807	1063241	I/H COVER ASSY
808	1063236	R SIDE COVER
809	1063226	FRONT COVER DAMPER R
810	1063227	FRONT COVER DAMPER L
811	1063233	L SIDE COVER
812	1063238	CR COVER
813	1063230	I/H COVER GEAR L-ASSY
814	1063239	I/H COVER GEAR R-ASSY
815	1063229	R INSAIDE COVER
816	1063228	FRONT COVER CAM
817	2047890	COVER SENSOR R ASSY
818	2047889	COVER SENSOR L ASSY
819	2047891	PANEL FCC
820	1063235	PRESS LEVER KNOB
821	1063225	MINI CLAMP
822	2049627	PANEL ASSY (ABROAD)
823	1071249	ROLL TOP COVER
824	2049623	SENSER COVER R ASSY
825	2049624	SENSER COVER L ASSY
901	1053559	FLANGE(2 INCH R)

Table 7-2. Parts Reference List

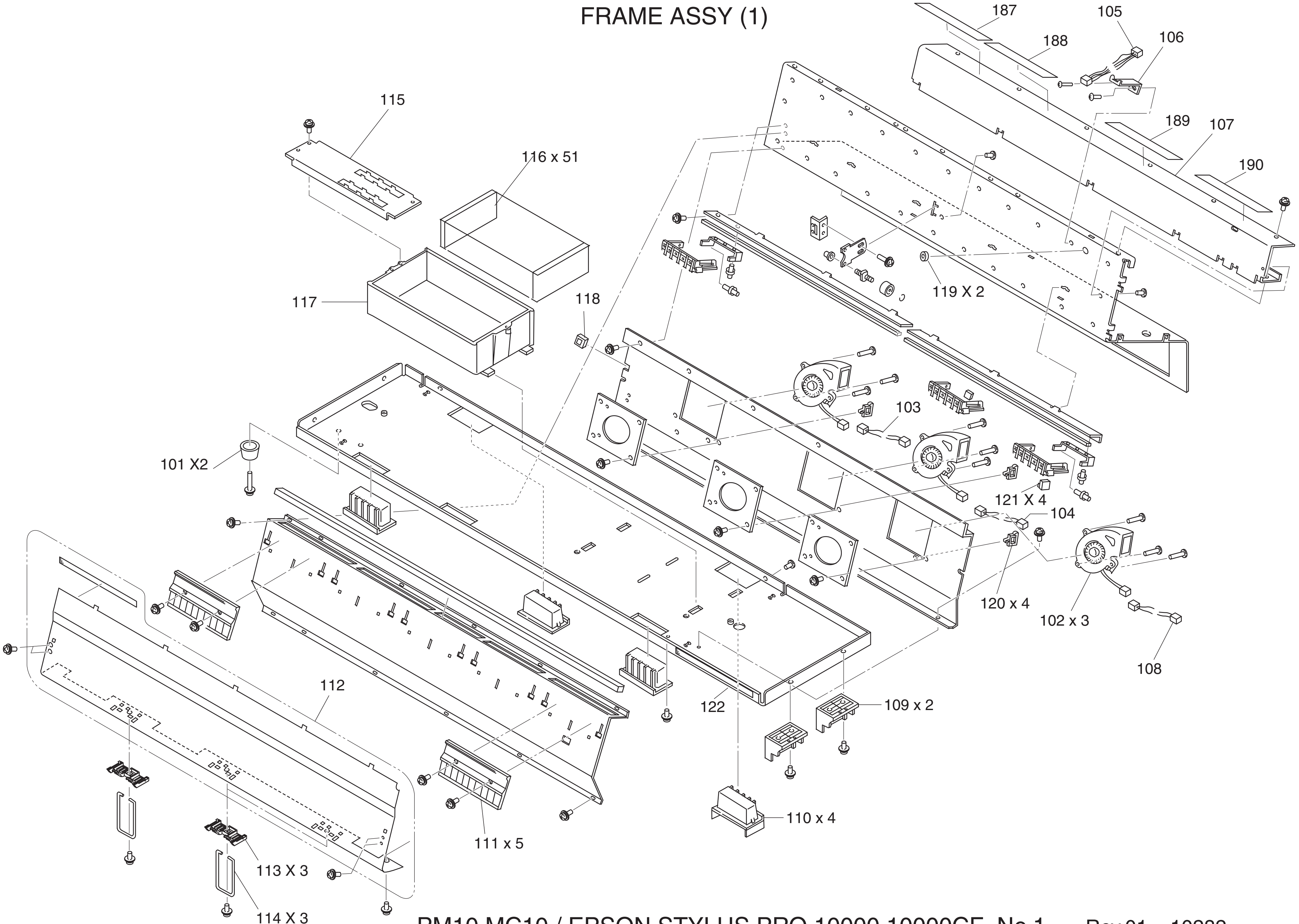
Ref No.	Sales Part Code	Description
902	1053560	FLANGE(2 INCH)
910	1071283	PACKING BOX ASSY(ABROAD)
911	1071285	PAPER OUT TRAY
912	1071286	CASTER(STOPPER)
913	1071287	CASTER(NON STOPPER)

7.3 Exploded View Diagram

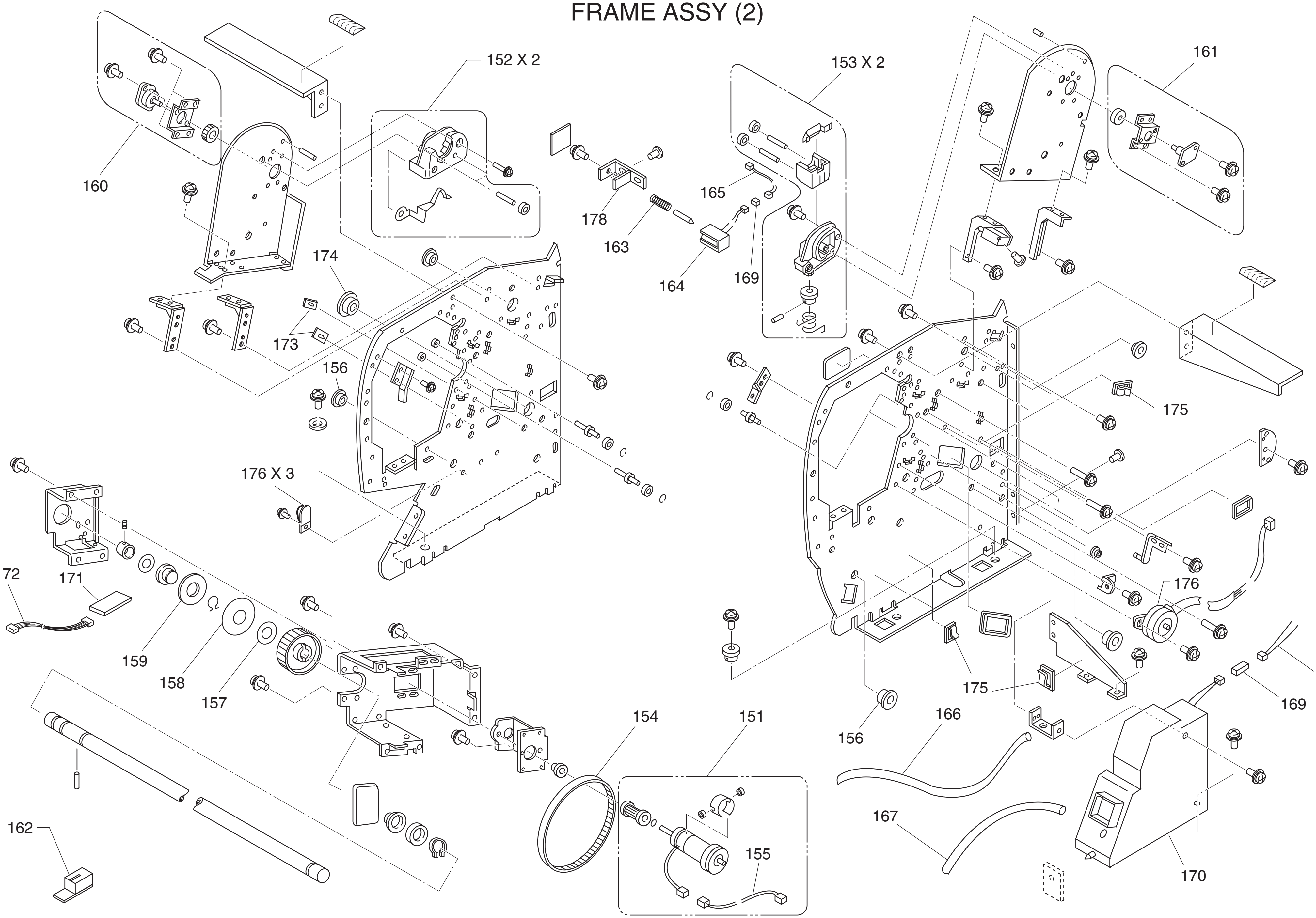
The exploded view diagram of this machine are shown after the next page. Furthermore, refer to the number that is allotted to each part in the figure, because it is corresponding in the figure number in the table of the parts list.

☐ No.1: FRAME ASSY (1)
☐ No.2: FRAME ASSY (2)
☐ No.3: HEAD ASSY
☐ No.4: CR_RAIL ASSY
☐ No.5: VACUUM SWITCH ASSY
☐ No.6: INK SYSTEM ASSY
☐ No.7: I/H ASSY
☐ No.8: CABLE GUIDE ASSY
☐ No.9: BOARD BASE ASSY
☐ No.10: COVER ASSY
☐ No.11: SPINDLE ASSY

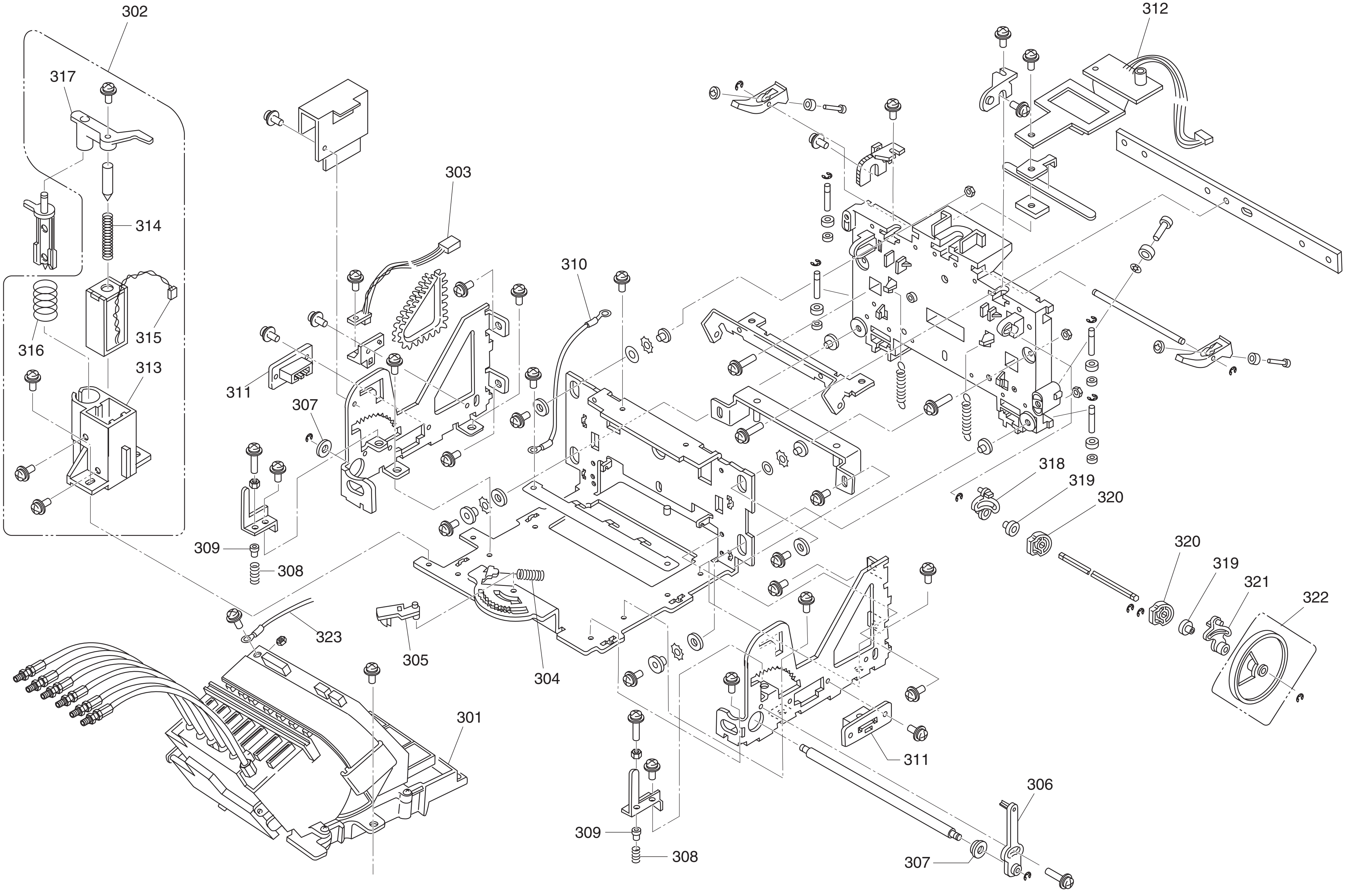
FRAME ASSY (1)


187
105
188
106
115
189
107
116 x 51
190
119 X 2
117
118
103
101 X2
121 X 4
104
120 x 4
102 x 3
108
112
122
109 x 2
110 x 4
111 x 5
113 X 3
114 X 3

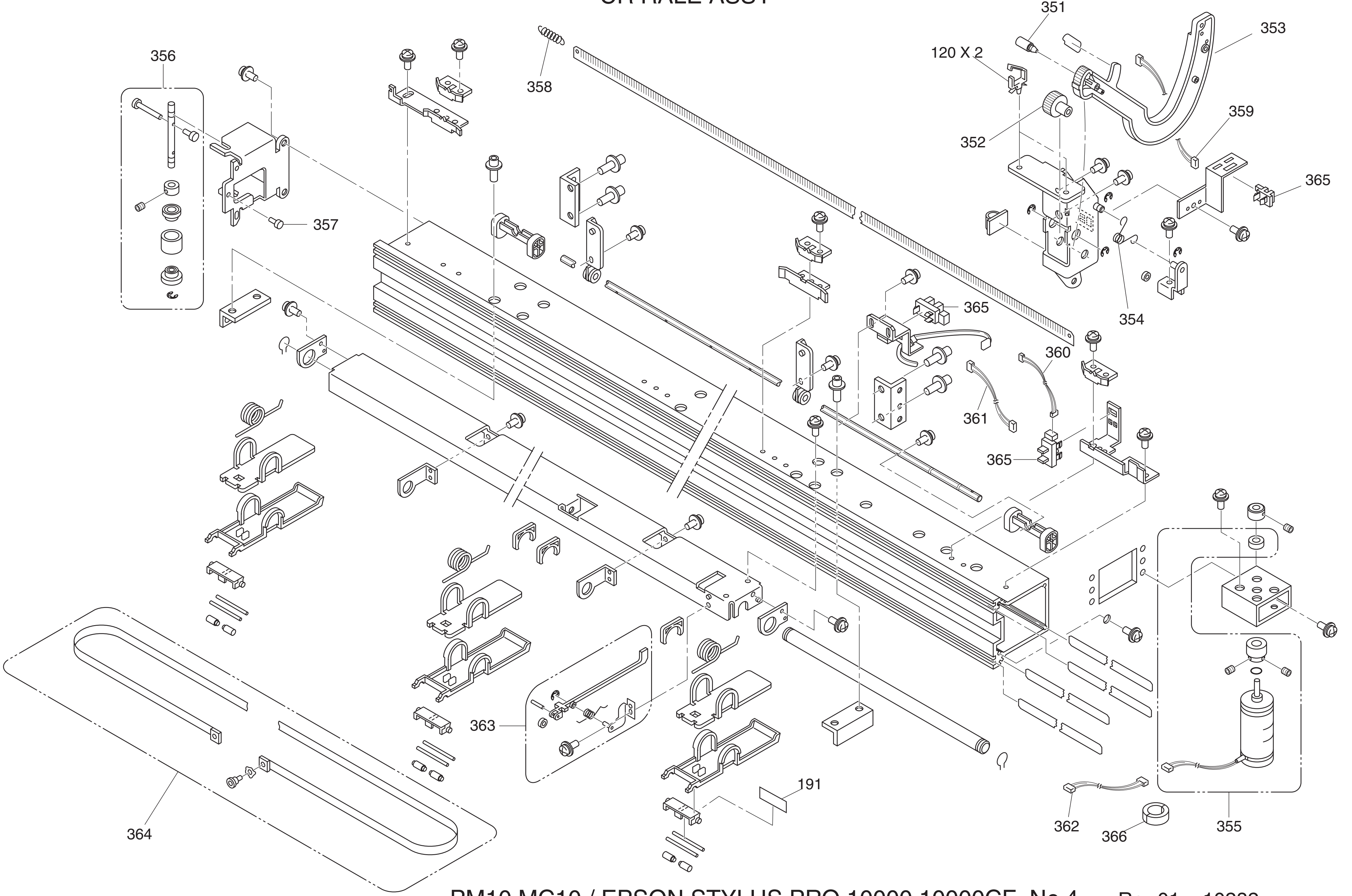
FRAME ASSY (2)


152 X 2
153 X 2
176 X 3

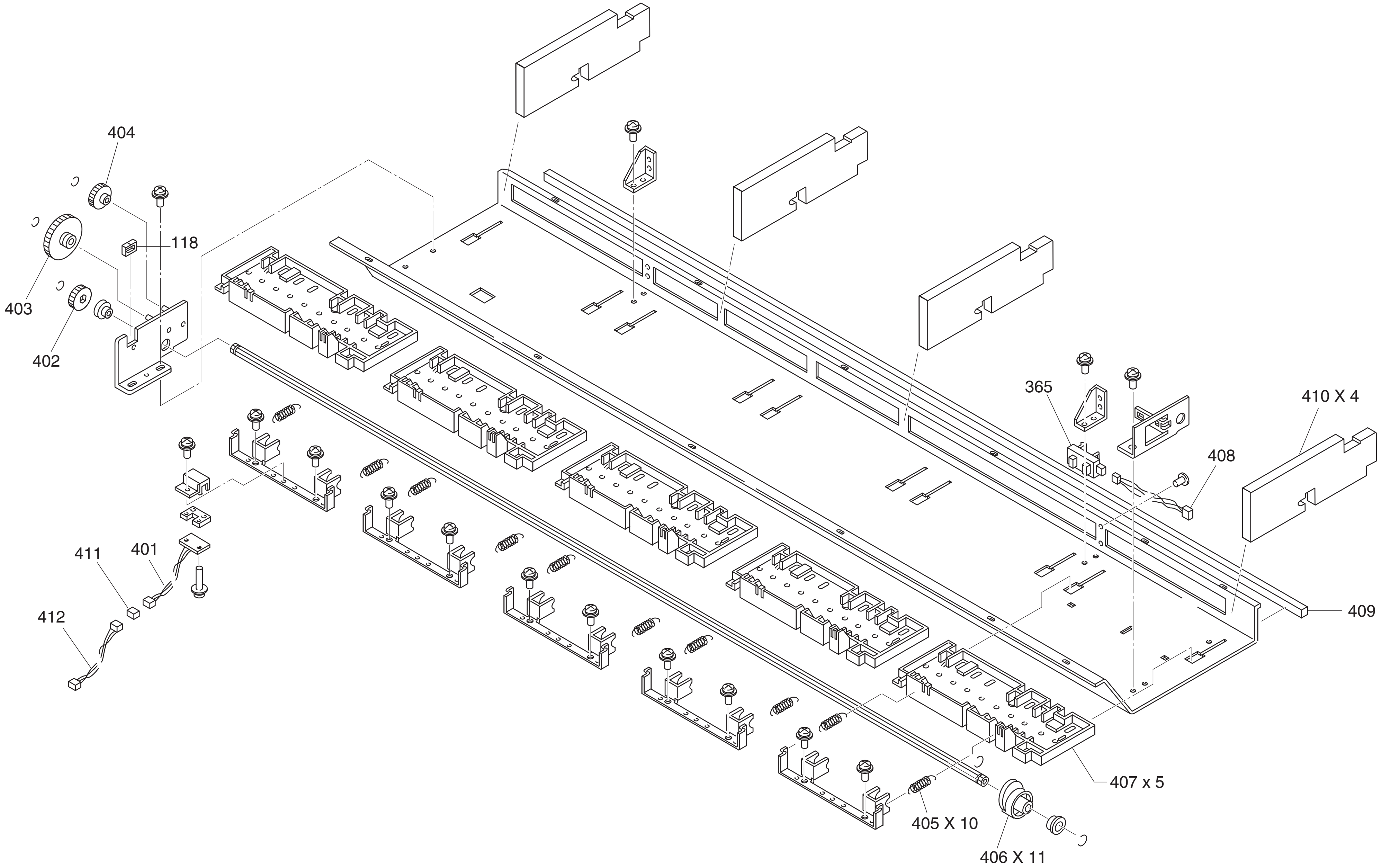
HEAD ASSY



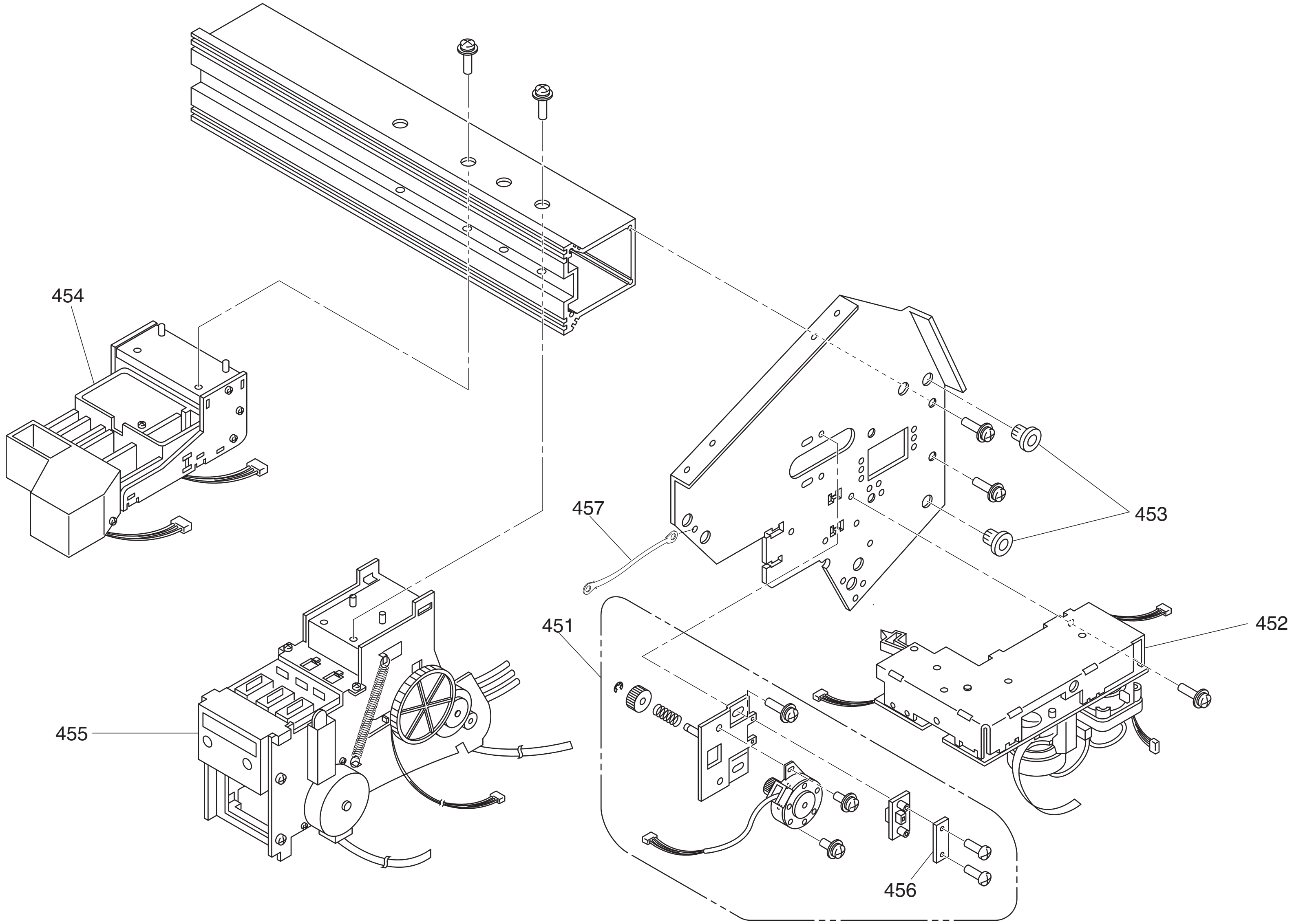
CR RALE ASSY


120 X 2

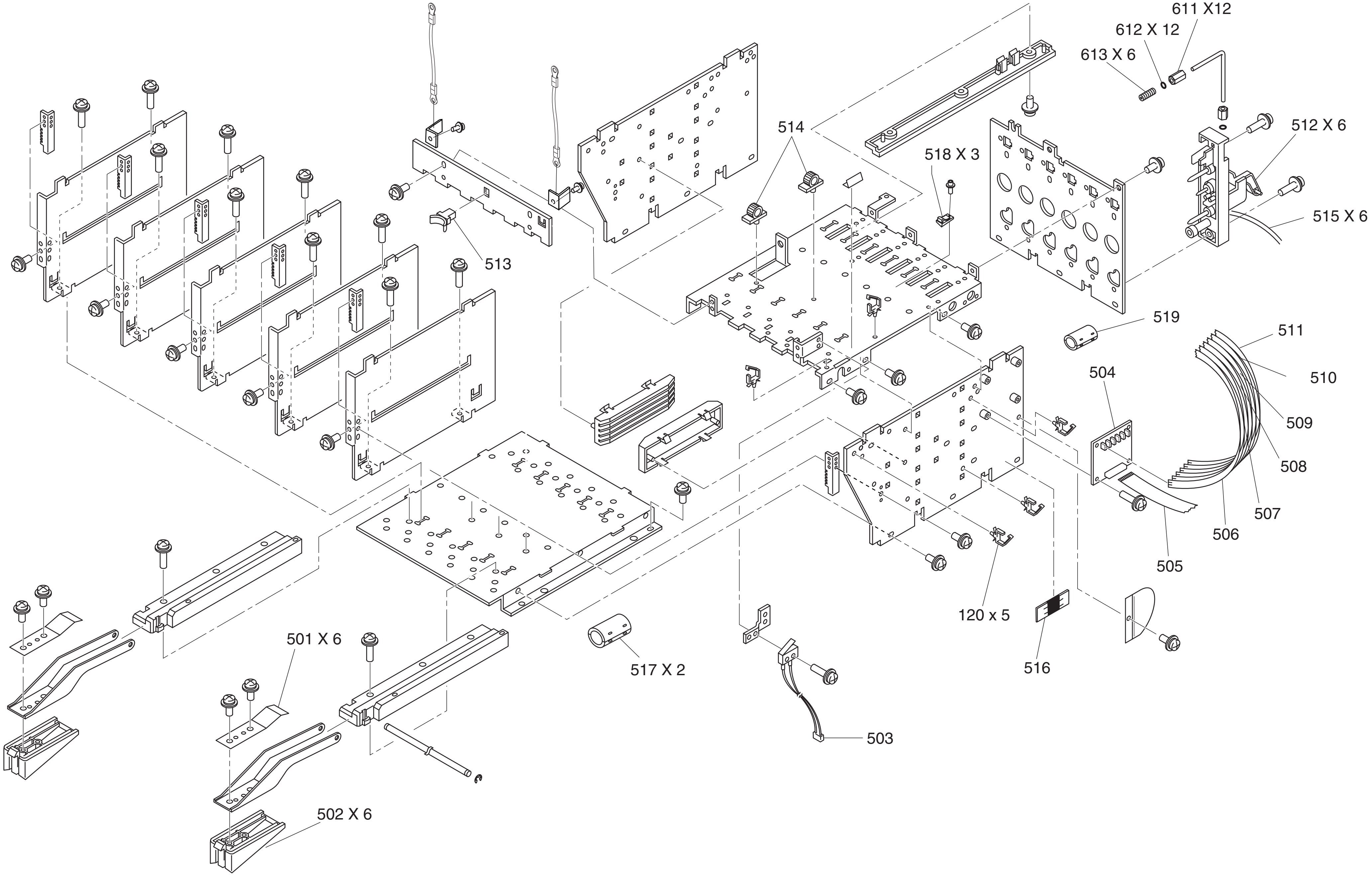
VACUUM SWITCH ASSY


404
118
403
402
365
410 X 4
408
411
401
412
409
407 x 5
405 X 10
406 X 11

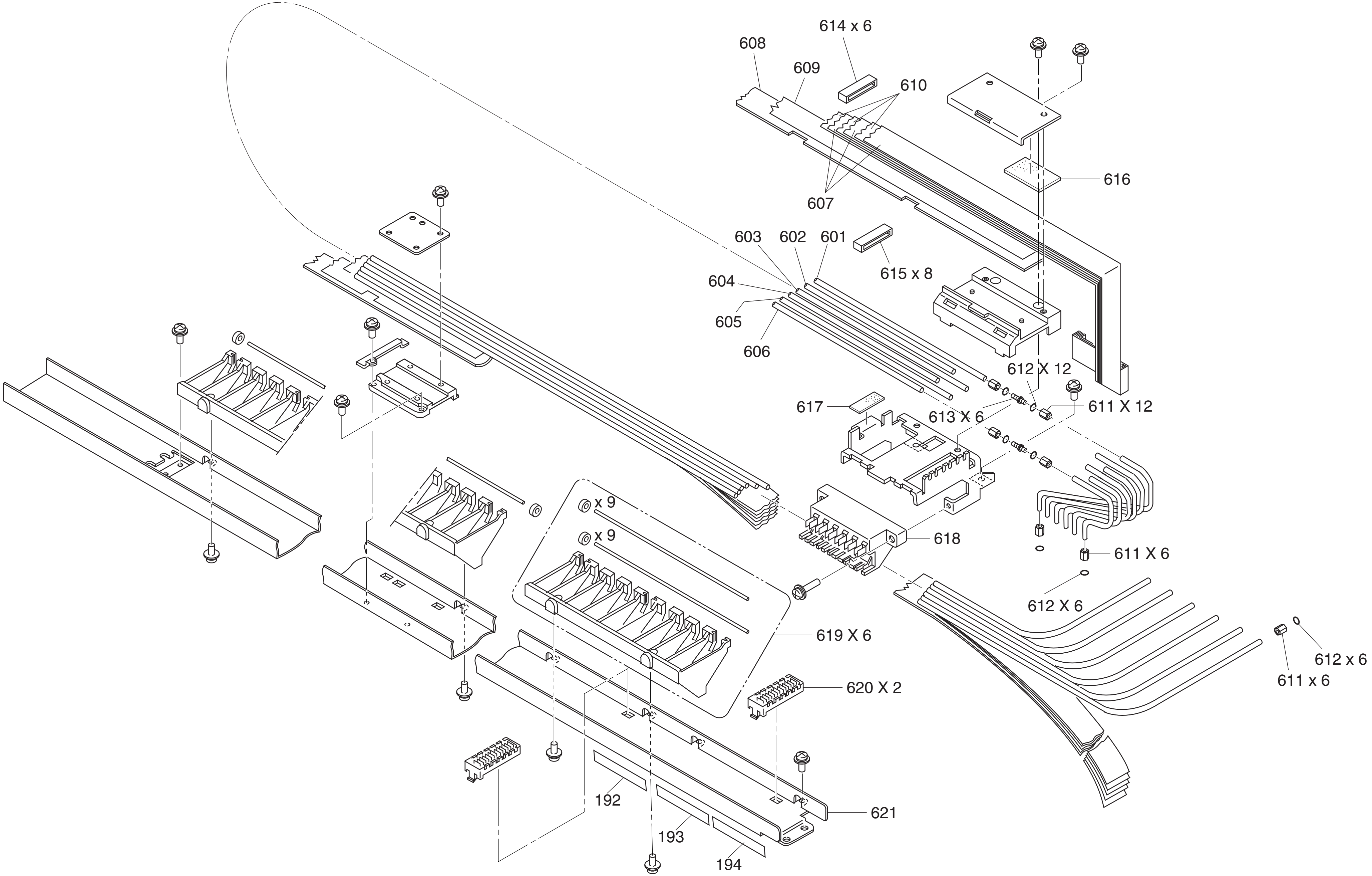
INK SYSTEM ASSY


454
457
453
451
452
455
456

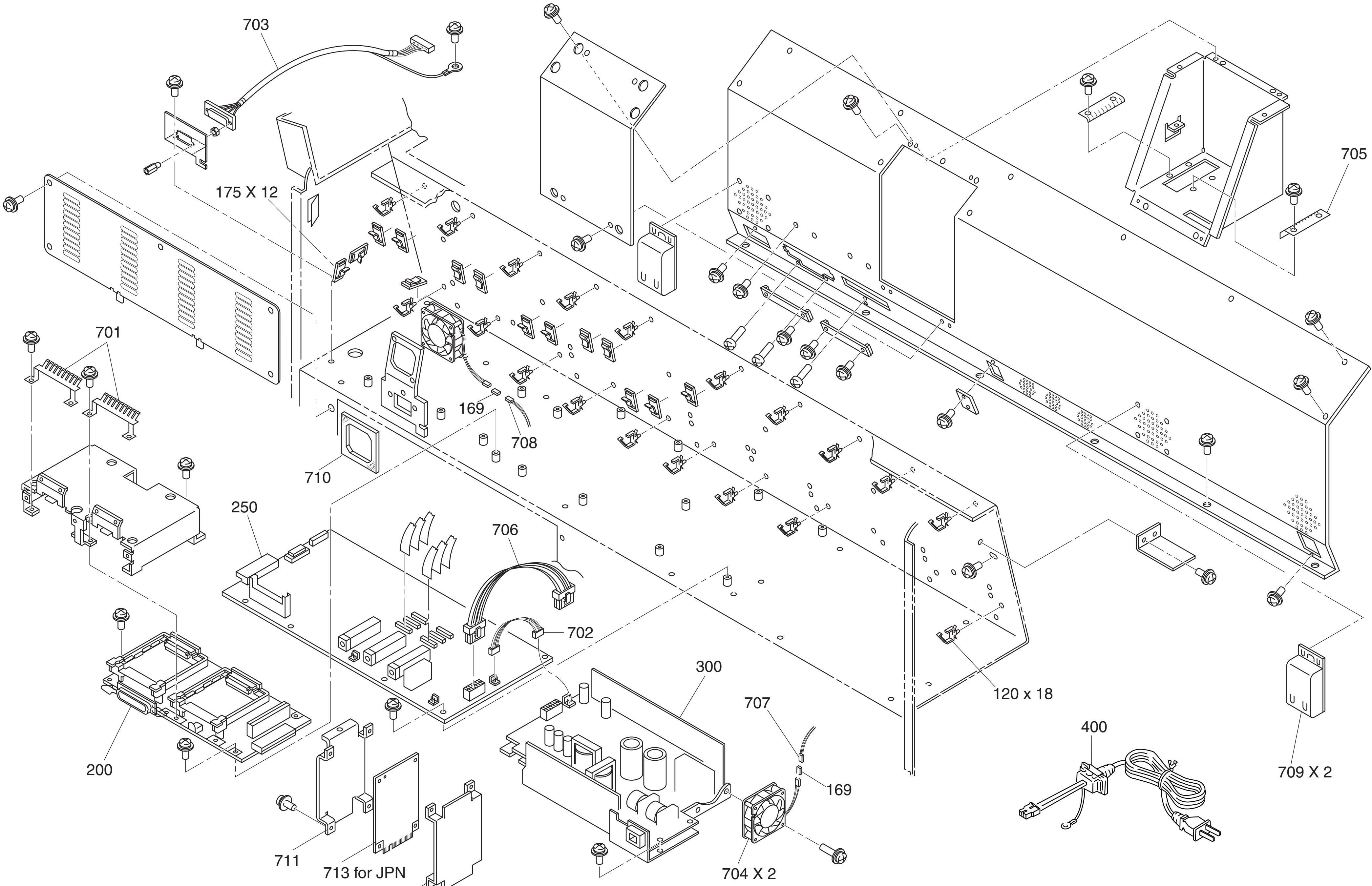
I / H ASSY


611 X12
612 X 12
613 X 6
512 X 6
514
518 X 3
515 X 6
513
519
511
510
504
509
508
507
506
505
120 x 5
516
517 X 2
501 X 6
503
502 X 6

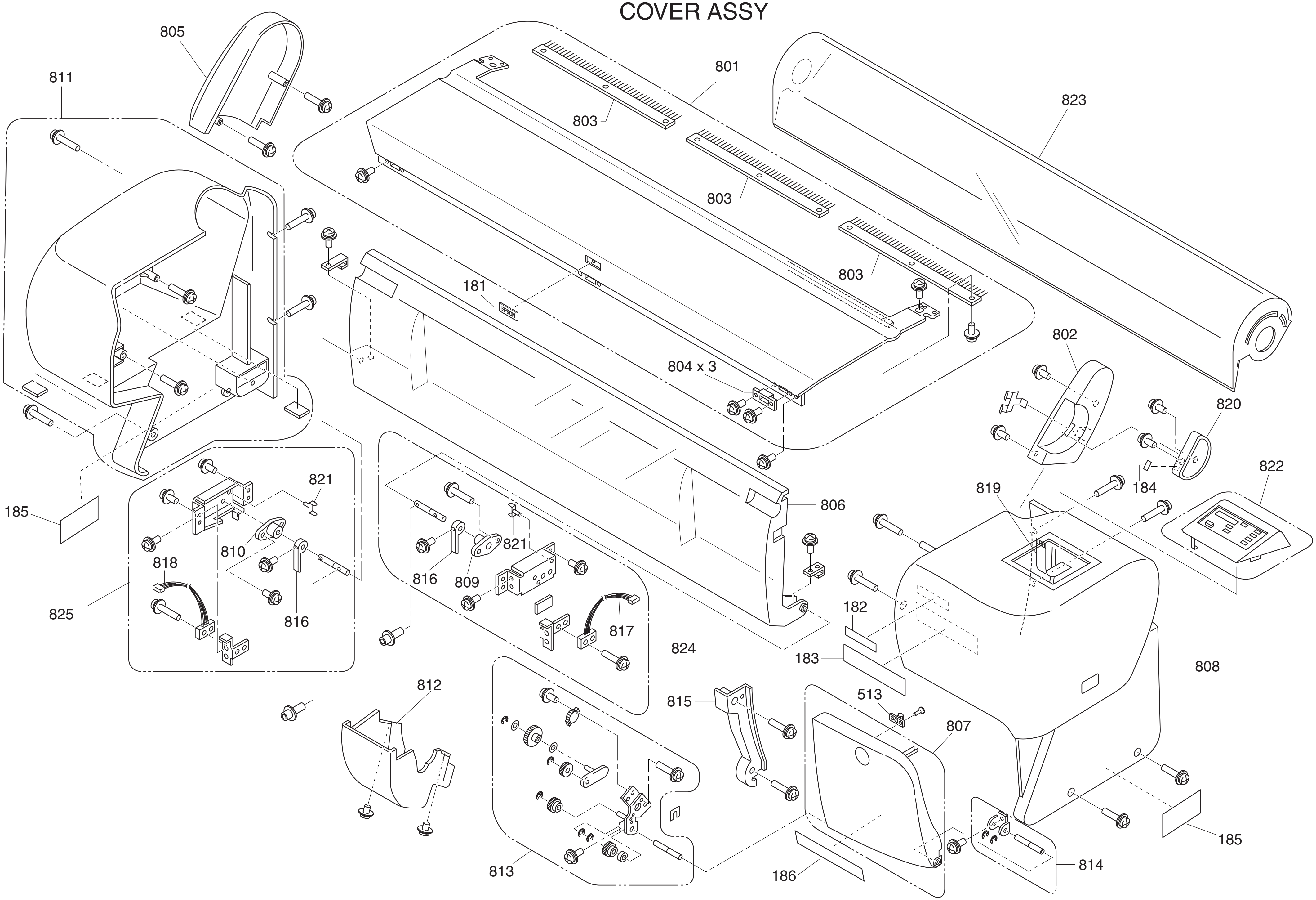
CABLE GUIDE ASSY


614 x 6
608
609
610
607
616
603
602
601
615 x 8
604
605
606
612 X 12
617
613 X 6
611 X 12
x 9
x 9
618
611 X 6
612 X 6
619 X 6
612 x 6
611 x 6
620 X 2
621
192
193
194

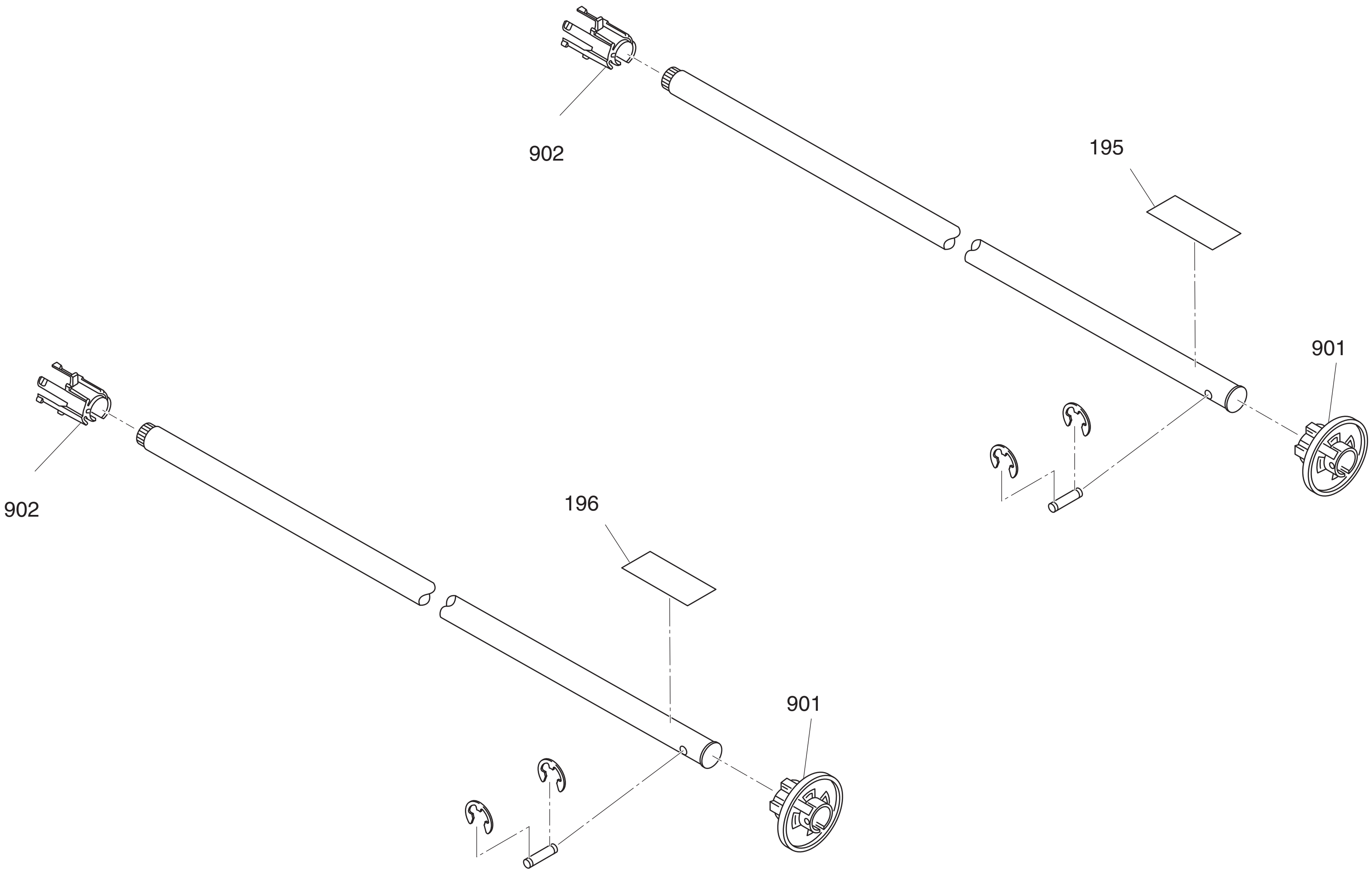
BOARD BASE ASSY


703
175 X 12
705 X 2
701
169
708
710
250
706
702
300
120 x 18
707
400
169
709 X 2
200
711
713 for JPN
704 X 2
712

COVER ASSY


804 x 3

SPINDLE ASSY


902
195
901
902
196
901

7.4 Component Layout

The illustrations below show the control circuit board component layout of this machine.

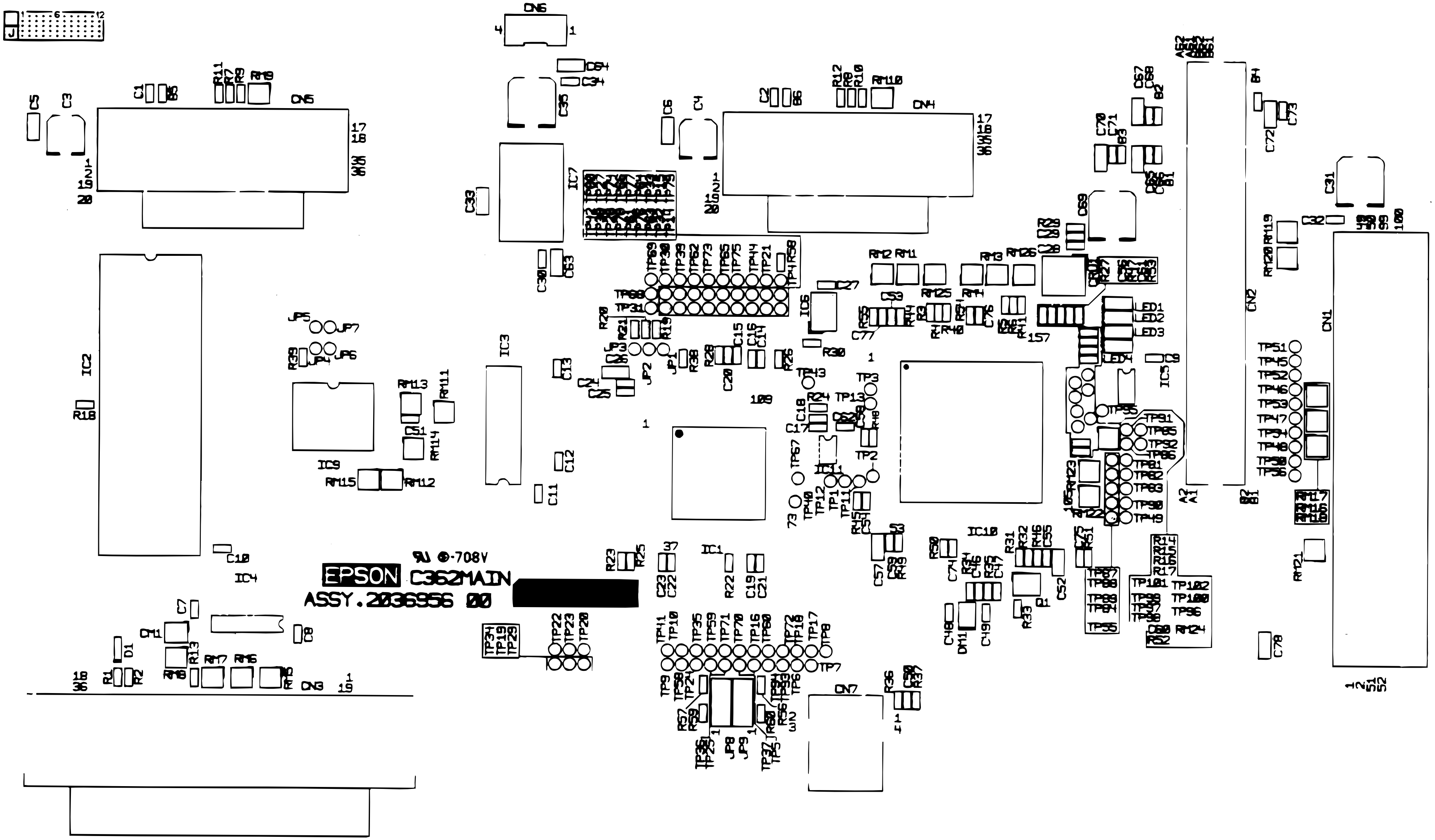

CN6
CN5
CN4
CN3
CN2
CN1
CN7
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC9
IC10
IC11
LED1
LED2
LED3
LED4
EPSON C362MAIN
ASSY.2036956 00
-708V
Q1
DM1
D1
JP1
JP2
JP3
JP4
JP5
JP6
JP7
JP8
JP9

Figure 7-2. C362MAIN Board Component Layout

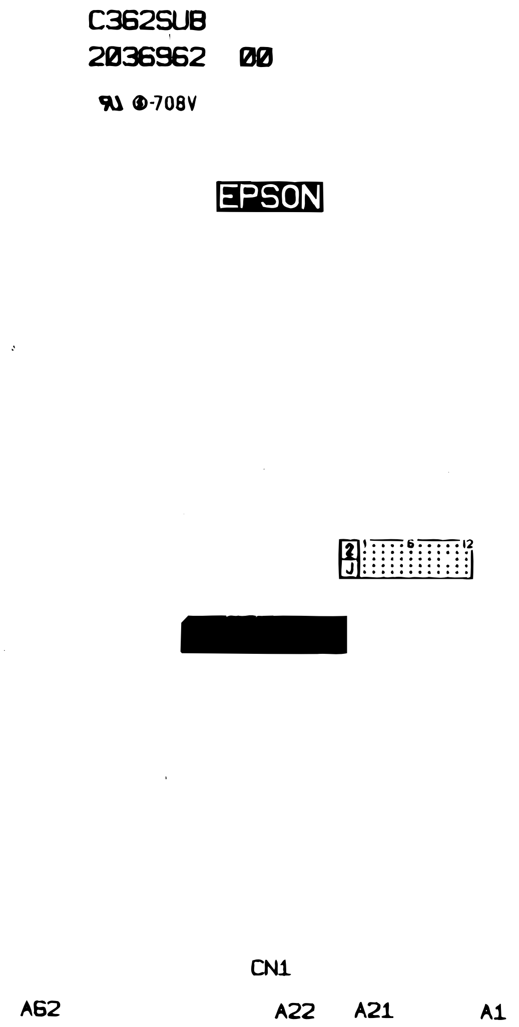

C362SUB
2036962 00
-708V
EPSON
1
6
12
CN1
A62
A22
A21
A1

Figure 7-3. C362SUB Board Component Layout

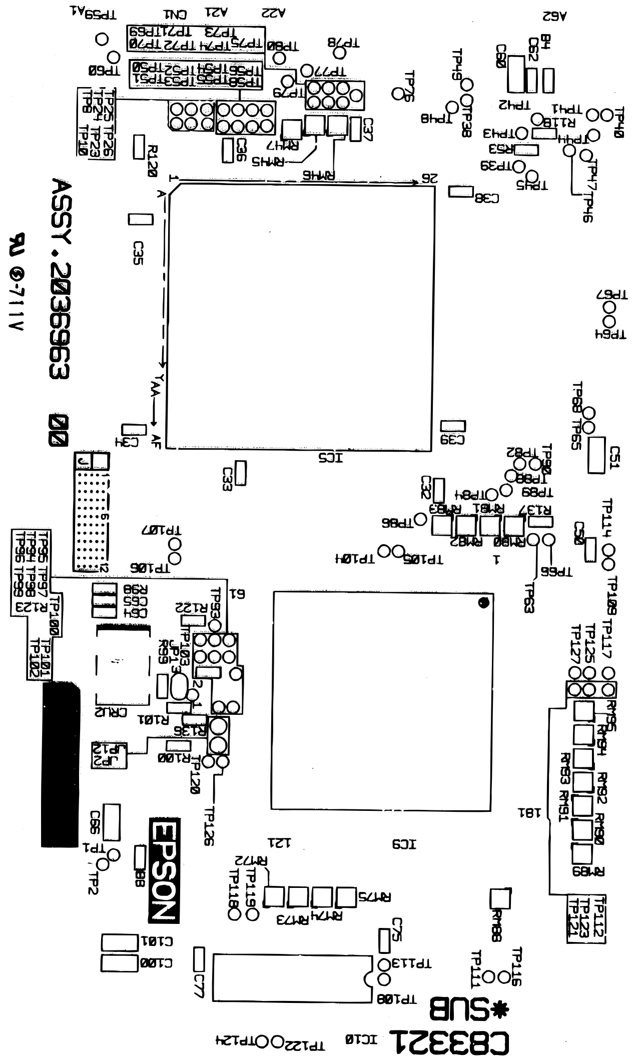

ASSY.2036963 00
C83321
*SUB
EPSON
IC5
IC9
IC10
CN1
CRU2

Figure 7-4. C83322 Board Component Layout (1/2)

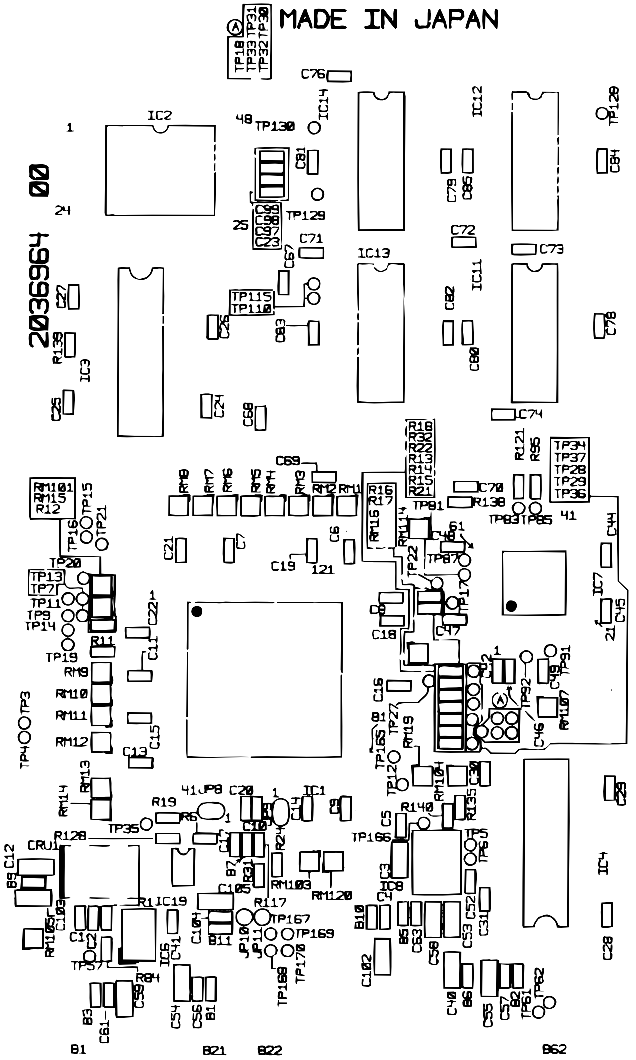

MADE IN JAPAN
2036964 00
IC2
IC3
IC4
IC7
IC11
IC12
IC13
IC14
CRU1

Figure 7-5. C83322 S Board Component Layout (2/2)

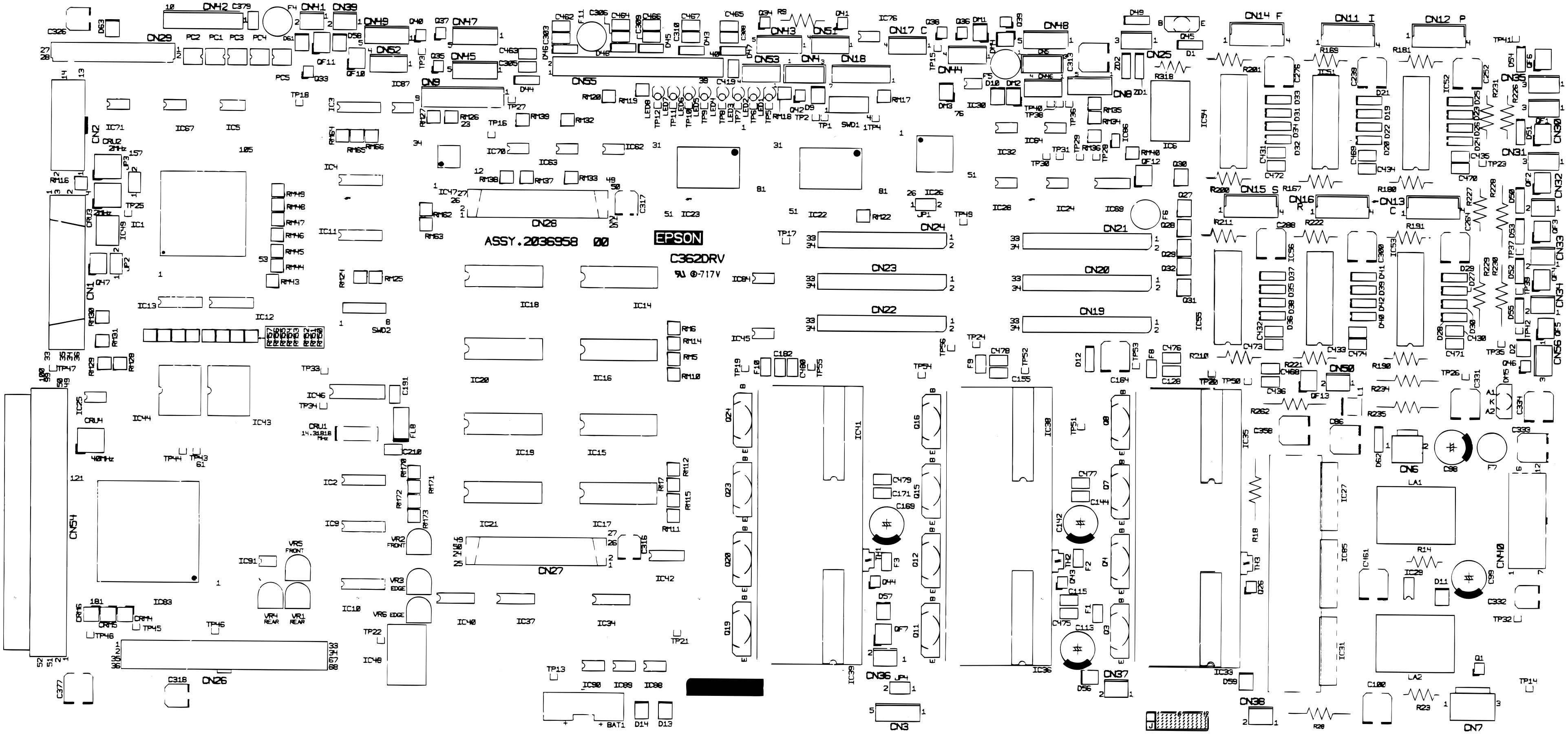

ASSY.2036958 00
EPSON
C362DRV
CN1
CN2
CN3
CN6
CN7
CN8
CN9
CN10
CN11 I
CN12 P
CN13 C
CN14 F
CN15 S
CN16 K
CN17 C
CN18
CN19
CN20
CN21
CN22
CN23
CN24
CN25
CN26
CN27
CN28
CN29
CN30
CN31
CN32
CN33
CN34
CN35
CN36
CN37
CN38
CN39
CN41
CN42
CN43
CN44
CN45
CN47
CN48
CN49
CN50
CN51
CN52
CN53
CN54
CN55
IC1
IC2
IC3
IC4
IC5
IC6
IC9
IC10
IC11
IC12
IC13
IC14
IC15
IC16
IC17
IC18
IC19
IC20
IC21
IC22
IC23
IC24
IC25
IC26
IC27
IC28
IC29
IC30
IC31
IC32
IC33
IC34
IC35
IC36
IC37
IC38
IC39
IC40
IC41
IC42
IC43
IC44
IC45
IC46
IC47
IC48
IC49
IC52
IC53
IC54
IC55
IC56
IC62
IC63
IC64
IC67
IC69
IC70
IC71
IC76
IC83
IC84
IC85
IC86
IC87
IC88
IC89
IC90
IC91
CRU1 14.31818 MHz
CRU2 24MHz
CRU3 24MHz
CRU4 40MHz
VR1 REAR
VR2 FRONT
VR3 EDGE
VR4 REAR
VR5 FRONT
VR6 EDGE
LA1
LA2
BAT1
SWD1
SWD2
C98
C99
C113
C142
C169
F7
R14
R18
R23
R28

Figure 7-6. C362DRV Board Component Layout (1/2)

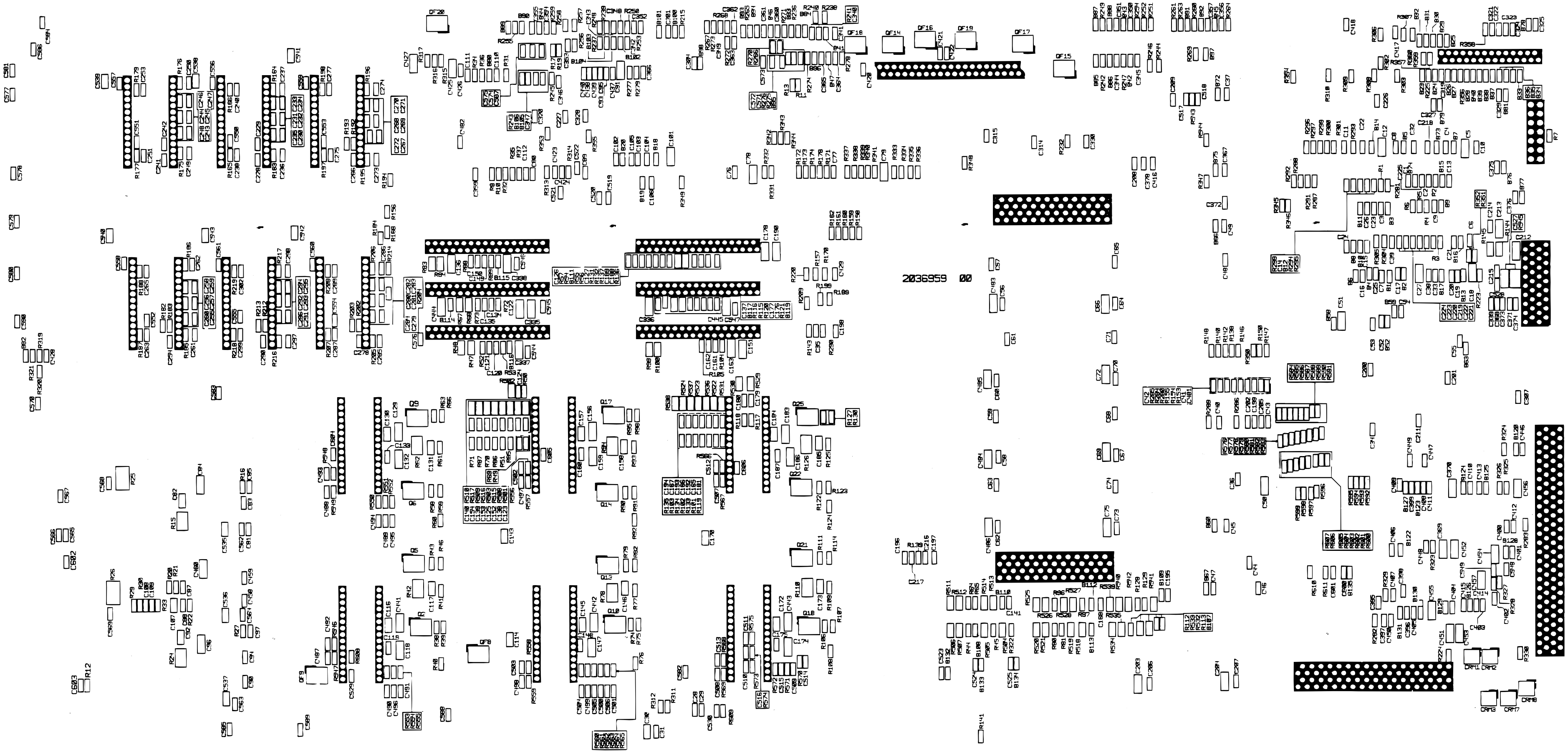
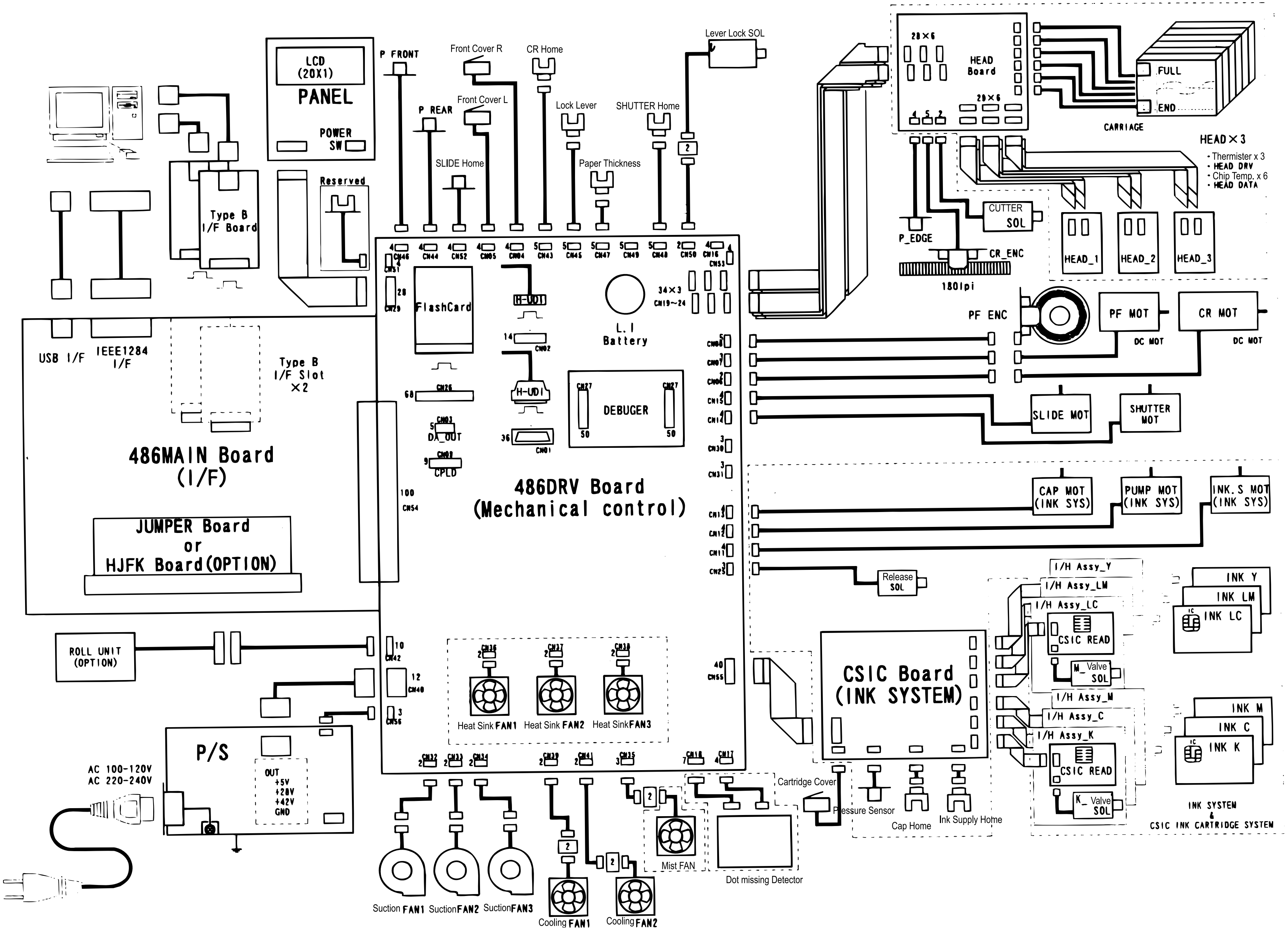


Figure 7-7. C362DRV Board Component Layout (2/2)

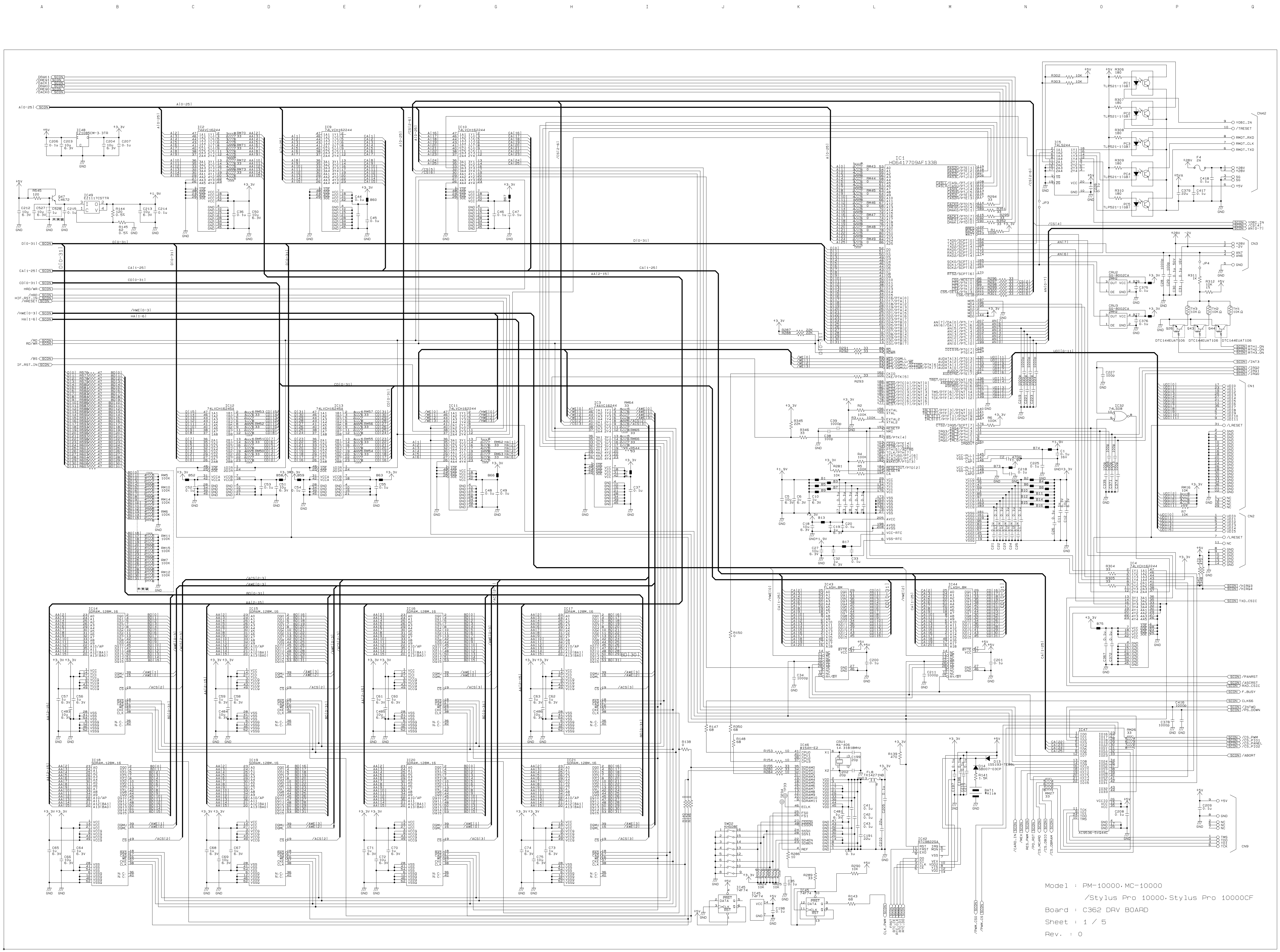
7.5 Circuit Diagram

The illustrations below show the control circuit board circuit diagram of this machine.


LCD (20X1)
PANEL
POWER SW
P FRONT
Front Cover R
CR Home
Lever Lock SOL
P REAR
Front Cover L
Lock Lever
SHUTTER Home
SLIDE Home
Paper Thickness
Reserved
Type B I/F Board
USB I/F
IEEE1284 I/F
Type B I/F Slot ×2
486MAIN Board (I/F)
JUMPER Board or HJFK Board(OPTION)
FlashCard
H-UDI
CN02
DA_OUT
CPLD
CN01
L.I Battery
34×3
DEBUGER
486DRV Board (Mechanical control)
ROLL UNIT (OPTION)
P/S
OUT +5V +28V +42V GND
AC 100-120V AC 220-240V
Heat Sink FAN1
Heat Sink FAN2
Heat Sink FAN3
Suction FAN1
Suction FAN2
Suction FAN3
Cooling FAN1
Cooling FAN2
Mist FAN
Dot missing Detector
Cartridge Cover
Pressure Sensor
Cap Home
Ink Supply Home
28×6
HEAD Board
FULL
END
CARRIAGE
HEAD×3
• Thermister x 3
• HEAD DRV
• Chip Temp. x 6
• HEAD DATA
CUTTER SOL
P_EDGE
CR_ENC
180lpi
HEAD_1
HEAD_2
HEAD_3
PF ENC
PF MOT
CR MOT
DC MOT
SLIDE MOT
SHUTTER MOT
CAP MOT (INK SYS)
PUMP MOT (INK SYS)
INK.S MOT (INK SYS)
Release SOL
CSIC Board (INK SYSTEM)
I/H Assy_Y
I/H Assy_LM
I/H Assy_LC
I/H Assy_M
I/H Assy_C
I/H Assy_K
CSIC READ
M_ Valve SOL
K_ Valve SOL
INK Y
INK LM
INK LC
INK M
INK C
INK K
IC
INK SYSTEM & CSIC INK CARTRIDGE SYSTEM

The circuit diagrams of the printer are followings;

1. **C362DRV board**
2. **C362DRV board**
3. **C362DRV board**
4. **C362DRV board**
5. **C362DRV board**
6. **C362MAIN board**
7. **C362SUB board**
8. **C83321SUB board**
9. **C83321SUB board**


A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q
1
2
3
4
5
6
7
8
9
10
11
12
IC1
HD6417709AF133B
IC2
74AVC16244
IC9
74LVCH162244
IC10
74LVCH162244
IC5
74LS244
IC48
EZ1085CM-3.3TR
IC49
EZ1117CSTTR
IC12
74LVCH16245A
IC13
74LVCH16245A
IC11
74LVCH162244
IC3
74AVC16244
IC14
SDRAM_128M_16
IC15
SDRAM_128M_16
IC16
SDRAM_128M_16
IC17
SDRAM_128M_16
IC18
SDRAM_128M_16
IC19
SDRAM_128M_16
IC20
SDRAM_128M_16
IC21
SDRAM_128M_16
IC43
FLASH_8M
IC44
FLASH_8M
IC4
74LVCH162244
IC32
74LS08
IC47
XC9536-5VQ44C
PC1
PC2
PC3
PC4
PC5
TLP521-1(GB)
CN42
CN3
CN1
CN2
CN9
TMS
TDO
TDI
TCK
GND
+3.3V
+5V
+1.9V
+28V

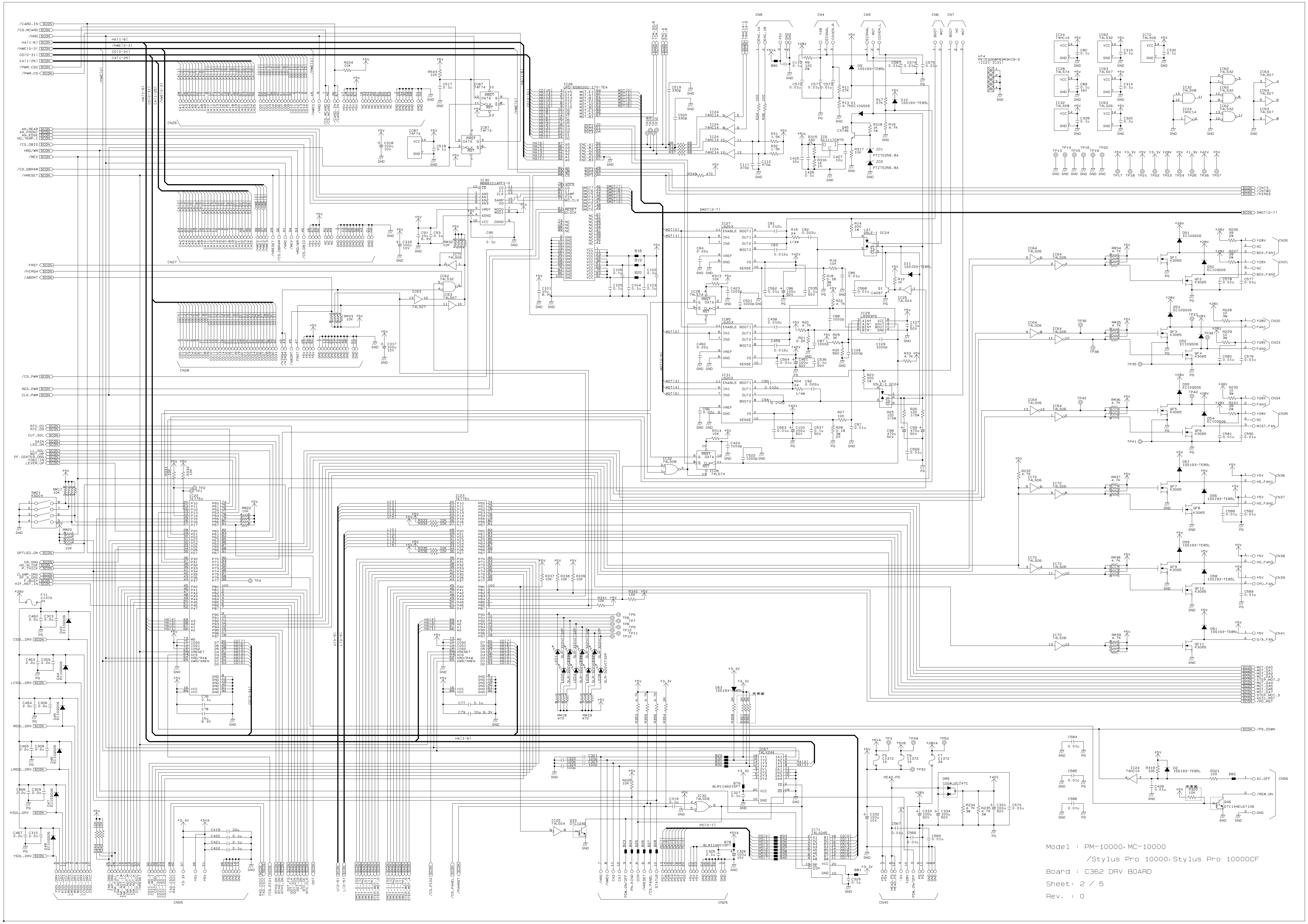
Model : PM-10000,MC-10000

/Stylus Pro 10000,Stylus Pro 10000CF

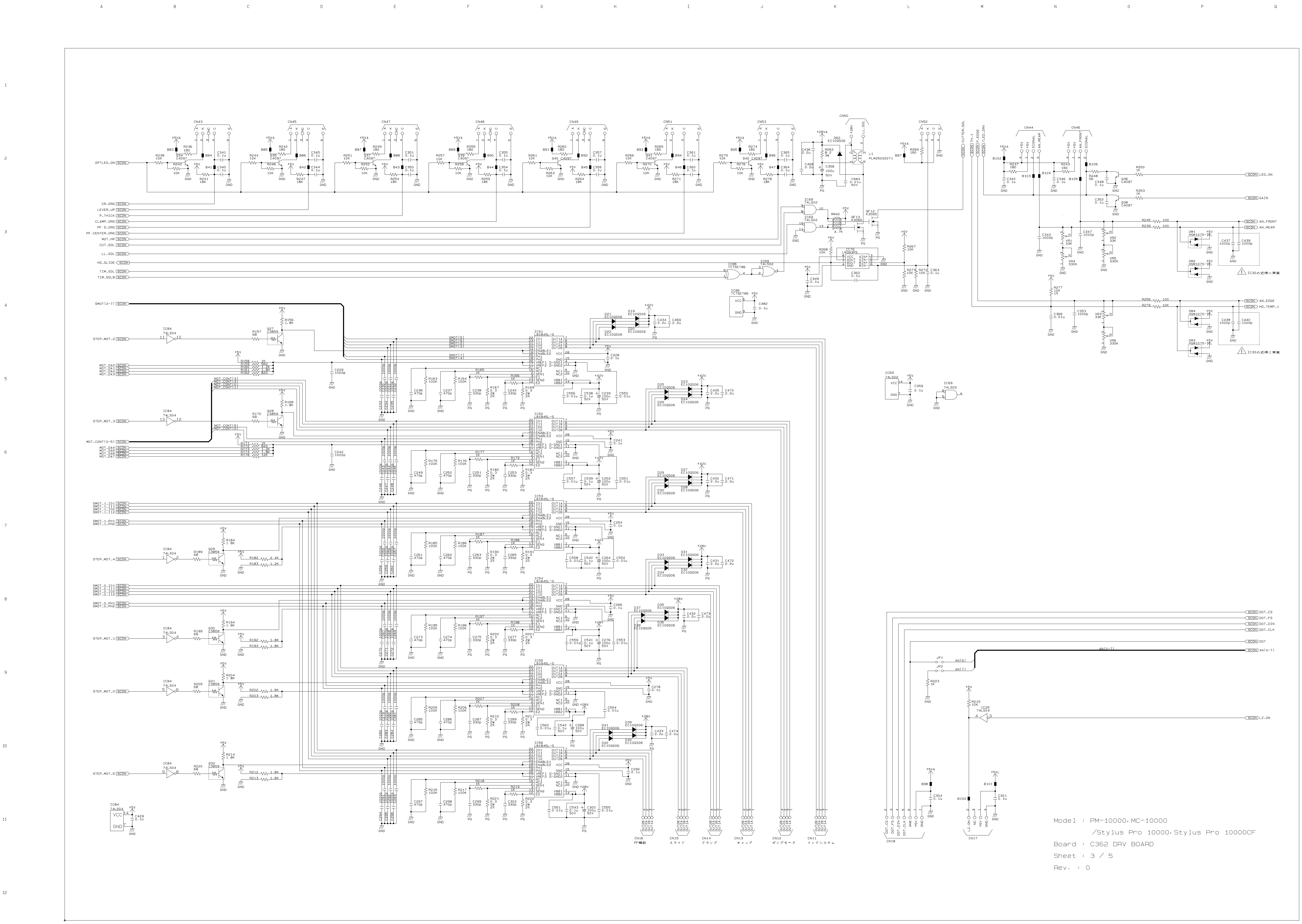
Board : C362 DRV BOARD

Sheet : 1 / 5

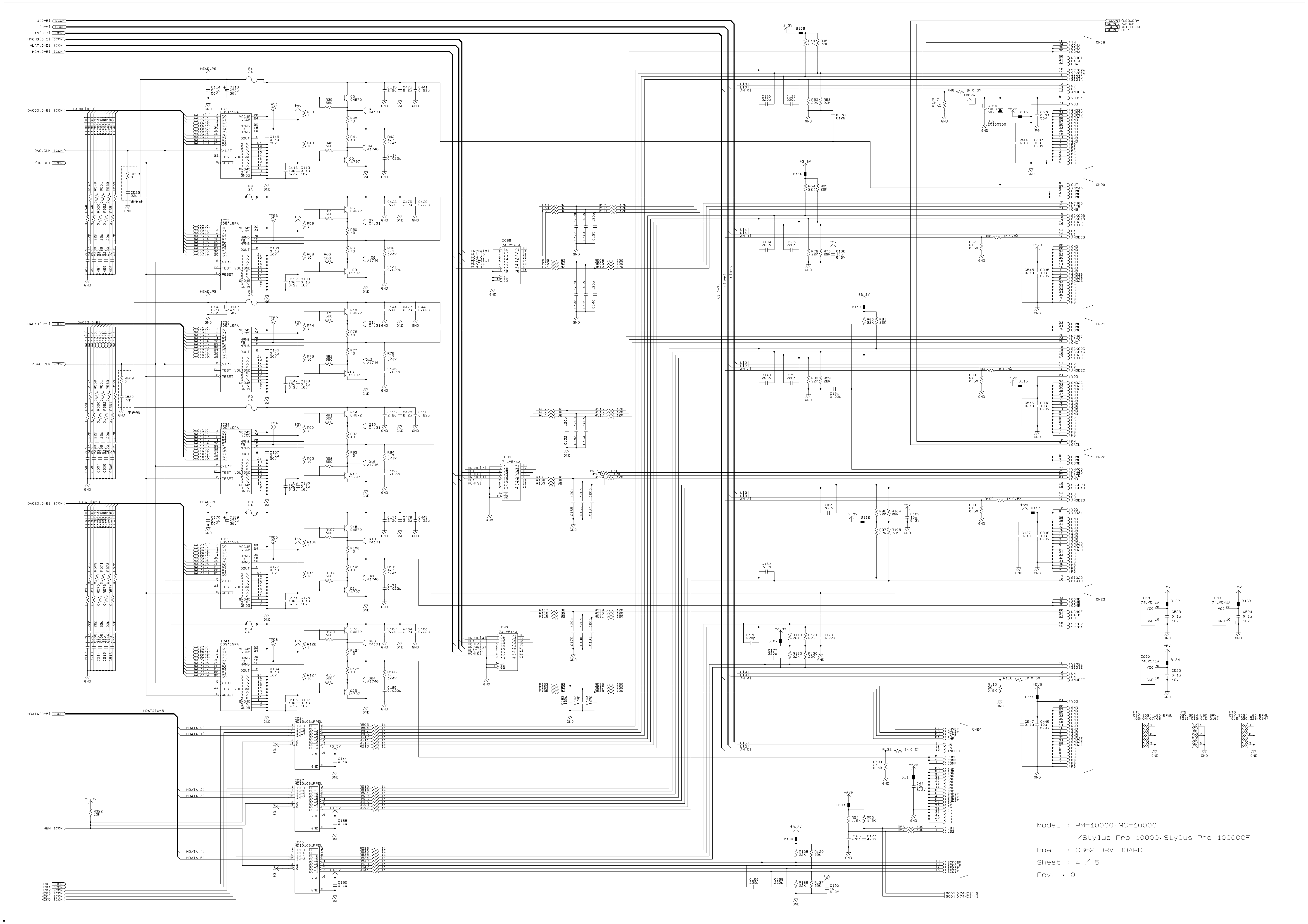
Rev. : 0


A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q
1
2
3
4
5
6
7
8
9
10
11
12
/CARD_IN
/CS_MCARD
/HRD
HA[1-6]
/HWE[0-3]
CD[0-31]
CA[1-25]
/PWM_CS0
/PWM_CS
CN26
CN27
CN28
CN4
CN5
CN6
CN7
CN8
CN29
CN30
CN31
CN32
CN33
CN34
CN35
CN36
CN37
CN38
CN39
CN40
CN41
CN55
CN56
IC26
uPD65802GC-170-7EA
IC30
MB88101APFV-G
IC22
IC23
IC27
LB203
IC31
LB203
IC85
LB203
IC29
MB83PS
IC24
74HC14
IC62
74LS32
IC63
74LS07
IC64
74LS06
IC70
74LS06
IC32
74LS08
IC25
74LS04
IC67
74LV244
IC71
74LV245
IC87
74F74
IC28
74LS74
IC6
SC1117CMTR
Q45
C3746
Q46
DTC144EUAT106
DM5
10SKJ2CZ47C
/INT3
/INT0
/HIRQ3
SMOT[2-7]
HA[1-6]
PD[0-7]
BOX_FAN1
BOX_FAN2
FAN1
FAN2
FAN3
MIST_FAN
HS_FAN1
HS_FAN2
HS_FAN3
CPU_FAN
G/A_FAN
AC_OFF
/REM_ON
/PS_DOWN
MOT_DA0
MOT_DA1
MOT_DA2
MOT_DA3
STEP_MOT_2
MOT_DA4
MOT_DA6
MOT_DA7
STEP_MOT_3
ASIC_RST
/PD_RST
+5V
+42V
+28V
+3.3V
GND

Model : PM-10000·MC-10000
/Stylus Pro 10000·Stylus Pro 10000CF
Board : C362 DRV BOARD
Sheet: 2 / 5
Rev. : 0


A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q
1
2
3
4
5
6
7
8
9
10
11
12
OPTLED_ON
CR_ORG
LEVER_UP
P_THICK
CLAMP_ORG
PF.S_ORG
PF.CENTER_ORG
MOT_HP
CUT_SOL
LL_SOL
HD_SLIDE
TIM_SOL
TIM_SOLB
SMOT[2-7]
STEP_MOT_2
MOT_DA0
MOT_DA1
MOT_DA2
MOT_DA3
STEP_MOT_3
MOT_CONT[0-5]
MOT_DA4
MOT_DA5
MOT_DA6
MOT_DA7
SMOT_1_I01
SMOT_1_I11
SMOT_1_I02
SMOT_1_I12
SMOT_1_PH1
SMOT_1_PH2
STEP_MOT_4
SMOT_0_I01
SMOT_0_I11
SMOT_0_I02
SMOT_0_I12
SMOT_0_PH1
SMOT_0_PH2
STEP_MOT_1
STEP_MOT_0
STEP_MOT_5
SCON
CN43
CN45
CN47
CN48
CN49
CN51
CN53
CN50
CN52
CN44
CN46
PLM250S20T1
CUTTER_SOL
TH-1
P_EDGE
LED_DRV
IC69 74LS02
IC76 LM393PS
IC86 TC7SET86
QF12 K3065
QF13 K3065
LED_ON
GAIN
AN_FRONT
AN_REAR
AN_EDGE
HD_TEMP_1
DM1 HSM107S-TL
DM2 HSM107S-TL
DM3 HSM107S-TL
DM4 HSM107S-TL
IC30の近傍に実装
IC84 74LS04
IC51 LB1845L-S
IC52 LB1845L-S
IC53 LB1845L-S
IC54 LB1845L-S
IC55 LB1845L-S
IC56 LB1845L-S
DOT_CS
DOT_FS
DOT_DIN
DOT_CLK
DOT
AN[0-7]
JP1
JP2
IC25 74LS04
LZ_ON
CN16
PF補助
CN15
スライド
CN14
クランプ
CN13
キャップ
CN12
ポンプモータ
CN11
インクシステム
CN18
CN17
+5VA
+5VL
+42V
+28V
+5V
GND
PG

Model : PM-10000, MC-10000
/Stylus Pro 10000, Stylus Pro 10000CF
Board : C362 DRV BOARD
Sheet : 3 / 5
Rev. : 0


A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q
1
2
3
4
5
6
7
8
9
10
11
12
U[0-5]
L[0-5]
AN[0-7]
HNCHG[0-5]
HLAT[0-5]
HCH[0-5]
DAC0D[0-9]
DAC.CLK
/HRESET
DAC1D[0-9]
/DAC.CLK
DAC2D[0-9]
HDATA[0-5]
HEN
HCK0
HCK1
HCK2
HCK3
HCK4
HCK5
HEAD.PS
IC33
IC35
IC36
IC38
IC39
IC41
E09A19RA
IC88
IC89
IC90
74LV541A
IC34
IC37
IC40
HD151031FPEL
CN19
CN20
CN21
CN22
CN23
CN24
LED.DRV
P.EDGE
CUTTER.SOL
TH.1
GND
+3.3V
+5V
+5VB
+28VA
HT1
HT2
HT3
74HC14-2
74HC14-1

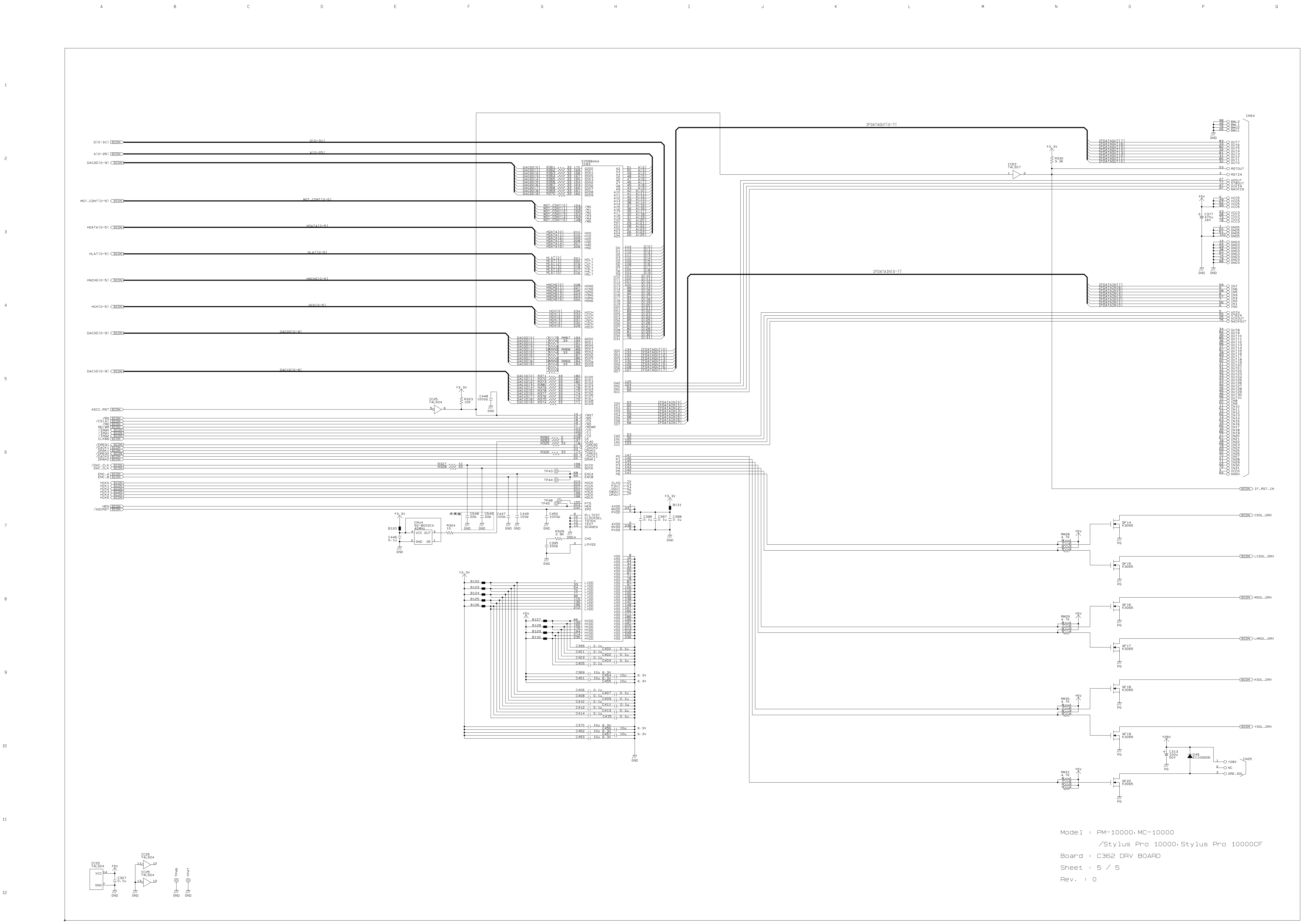
Model : PM-10000,MC-10000

/Stylus Pro 10000,Stylus Pro 10000CF

Board : C362 DRV BOARD

Sheet : 4 / 5

Rev. : 0


D[0-31] SCON
A[0-25] SCON
DAC2D[0-9] SCON
MOT_CONT[0-5] SCON
HDATA[0-5] SCON
HLAT[0-5] SCON
HNCHG[0-5] SCON
HCH[0-5] SCON
DAC0D[0-9] SCON
DAC1D[0-9] SCON
ASIC_RST SCON
/BS
/CS[4]
/RD
RD/WR
/IRQ0
/IRQ1
/IRQ2
CLK66
/DREQ1
/DACK1
DRAK1
/DREQ0
/DACK0
DRAK0
/DAC_CLK
DAC_CLK
ENC_A
ENC_B
HCK0
HCK1
HCK2
HCK3
HCK4
HCK5
HEN
/ASCRST
E05B84AA
IC83
IC25 74LS04
IC63 74LS07
CRU4 SG-8002CA 40MHz
IFDATAOUT[0-7]
IFDATAIN[0-7]
CN54
IF_RST_IN
RM28 4.7K
RM29 4.7K
RM30 4.7K
RM31 4.7K
QF14 K3065
QF15 K3065
QF16 K3065
QF17 K3065
QF18 K3065
QF19 K3065
QF20 K3065
CSOL_DRV
LCSOL_DRV
MSOL_DRV
LMSOL_DRV
KSOL_DRV
YSOL_DRV
C313 100u 50V
D49 EC10QS06
CN25
+28V
NC
GRE_SOL
PG
GND
+3.3V
+5V
TP43
TP44
TP45
TP46
TP47
TP48

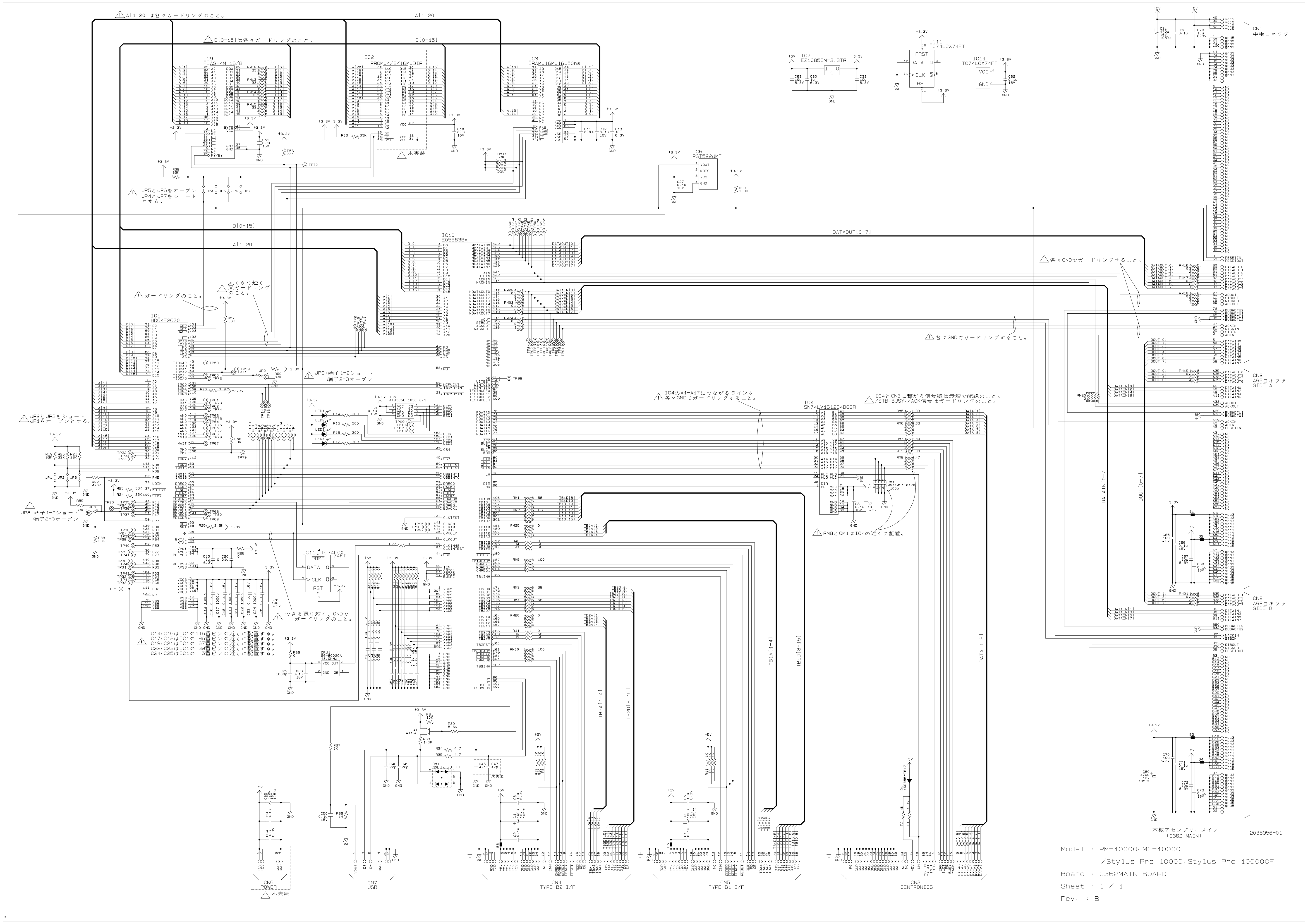
Model : PM-10000, MC-10000

/Stylus Pro 10000, Stylus Pro 10000CF

Board : C362 DRV BOARD

Sheet : 5 / 5

Rev. : 0


IC9 FLASH4M-16/8
IC2 PROM_4/8/16M_DIP
IC3 DRAM_16M_16-50ns
IC7 EZ1085CM-3.3TR
IC11 TC74LCX74FT
IC6 PST592JMT
IC10 E05B83BA
IC1 HD64F2670
IC5 AT93C56-10SI-2.5
IC4 SN74LV161284DGGR
CRU1 SG-8002CA 48.0MHz
DM1 NNCD5.6LG-T1
CN1 中継コネクタ
CN2 AGPコネクタ SIDE A
CN2 AGPコネクタ SIDE B
CN3 CENTRONICS
CN4 TYPE-B2 I/F
CN5 TYPE-B1 I/F
CN6 POWER
CN7 USB
A[1-20]
D[0-15]
DATAOUT[0-7]
DATAIN[0-7]
DOUT[0-7]
DATA[1-8]
TB1A[1-4]
TB1D[8-15]
TB2A[1-4]
TB2D[8-15]
未実装

⚠ A[1-20]は各々ガードリングのこと。

⚠ D[0-15]は各々ガードリングのこと。

⚠ JP5とJP6をオープン
JP4とJP7をショート
とする。

⚠ ガードリングのこと。

⚠ 太くかつ短く
又ガードリング
のこと。

⚠ JP9:端子1-2ショート
端子2-3オープン

⚠ JP2とJP3をショート
JP1をオープンとする。

⚠ JP8:端子1-2ショート
端子2-3オープン

⚠ できる限り短く、GNDで
ガードリングのこと。

⚠ C14,C16はIC1の116番ピンの近くに配置する。
C17,C18はIC1の 96番ピンの近くに配置する。
C19,C21はIC1の 67番ピンの近くに配置する。
C22,C23はIC1の 39番ピンの近くに配置する。
C24,C25はIC1の 5番ピンの近くに配置する。

⚠ IC4のA1-A17につながるラインを
各々GNDでガードリングすること。

⚠ IC4とCN3に繋がる信号線は最短で配線のこと。
/STB,BUSY,/ACK信号はガードリングのこと。

⚠ 各々GNDでガードリングすること。

⚠ 各々GNDでガードリングすること。

⚠ RM8とCM1はIC4の近くに配置。

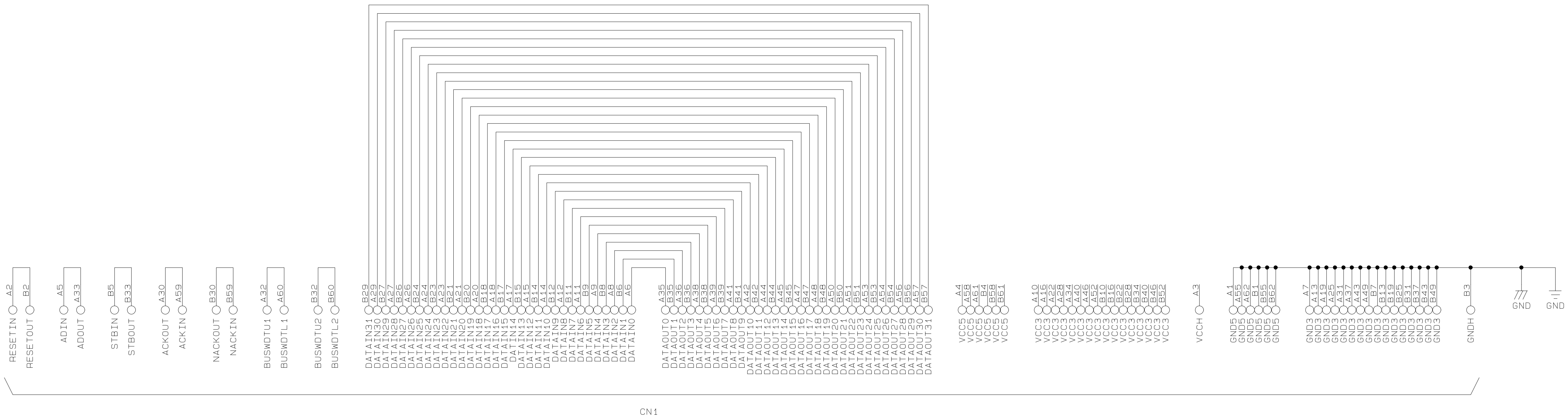
⚠ 未実装

⚠ 未実装

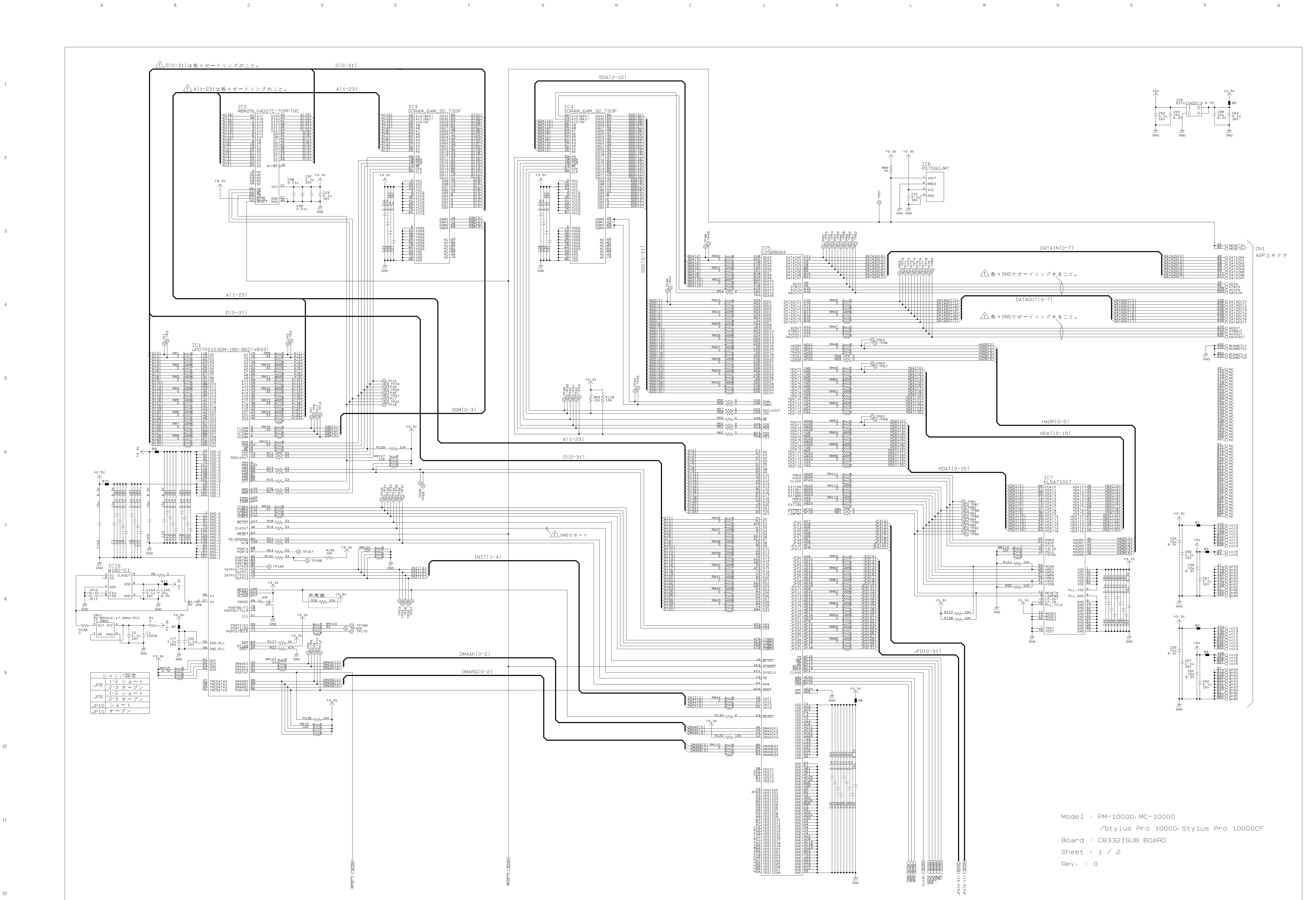
基板アセンブリ、メイン
(C362 MAIN)

2036956-01

Model : PM-10000,MC-10000
/Stylus Pro 10000,Stylus Pro 10000CF
Board : C362MAIN BOARD
Sheet : 1 / 1
Rev. : B

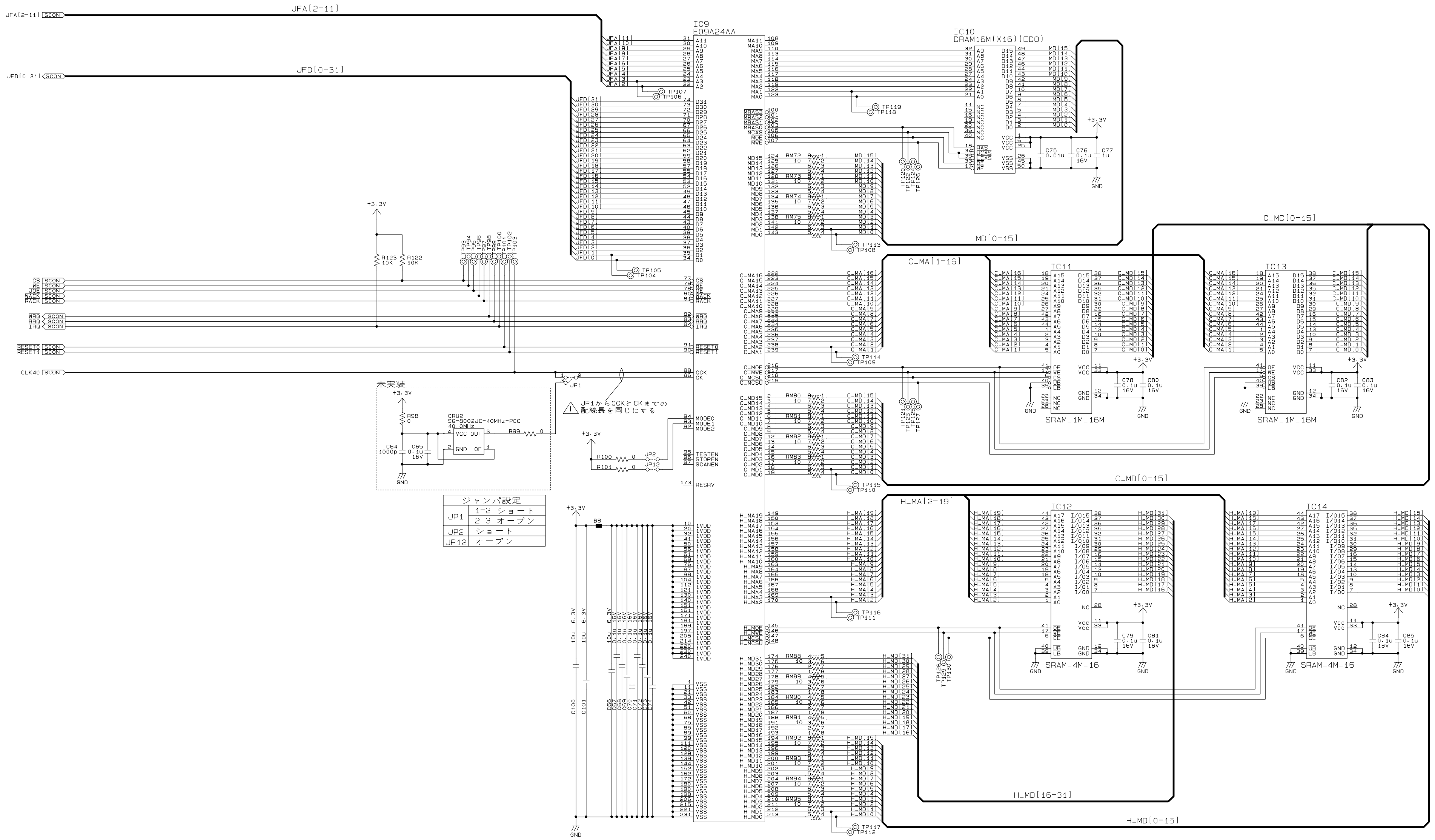

RESETIN A2
RESETOUT B2
ADIN A5
ADOUT A33
STBIN B5
STBOUT B33
ACKOUT A30
ACKIN A59
NACKOUT B30
NACKIN B59
BUSWDTU1 A32
BUSWDTL1 A60
BUSWDTU2 B32
BUSWDTL2 B60
DATAIN31 B29
DATAIN30 A29
DATAIN29 B27
DATAIN28 A27
DATAIN27 B26
DATAIN26 A26
DATAIN25 B24
DATAIN24 A24
DATAIN23 B23
DATAIN22 A23
DATAIN21 B21
DATAIN20 A21
DATAIN19 B20
DATAIN18 A20
DATAIN17 B18
DATAIN16 A18
DATAIN15 B17
DATAIN14 A17
DATAIN13 B15
DATAIN12 A15
DATAIN11 B14
DATAIN10 A14
DATAIN9 B12
DATAIN8 A12
DATAIN7 B11
DATAIN6 A11
DATAIN5 B9
DATAIN4 A9
DATAIN3 B8
DATAIN2 A8
DATAIN1 B6
DATAIN0 A6
DATAOUT0 A35
DATAOUT1 B35
DATAOUT2 A36
DATAOUT3 B36
DATAOUT4 A38
DATAOUT5 B38
DATAOUT6 A39
DATAOUT7 B39
DATAOUT8 A41
DATAOUT9 B41
DATAOUT10 A42
DATAOUT11 B42
DATAOUT12 A44
DATAOUT13 B44
DATAOUT14 A45
DATAOUT15 B45
DATAOUT16 A47
DATAOUT17 B47
DATAOUT18 A48
DATAOUT19 B48
DATAOUT20 A50
DATAOUT21 B50
DATAOUT22 A51
DATAOUT23 B51
DATAOUT24 A53
DATAOUT25 B53
DATAOUT26 A54
DATAOUT27 B54
DATAOUT28 A56
DATAOUT29 B56
DATAOUT30 A57
DATAOUT31 B57
VCC5 A4
VCC5 A58
VCC5 A61
VCC5 B4
VCC5 B58
VCC5 B61
VCC3 A10
VCC3 A16
VCC3 A22
VCC3 A28
VCC3 A34
VCC3 A40
VCC3 A46
VCC3 A52
VCC3 B10
VCC3 B16
VCC3 B22
VCC3 B28
VCC3 B34
VCC3 B40
VCC3 B46
VCC3 B52
VCCH A3
GND5 A1
GND5 A55
GND5 A62
GND5 B1
GND5 B55
GND5 B62
GND3 A7
GND3 A13
GND3 A19
GND3 A25
GND3 A31
GND3 A37
GND3 A43
GND3 A49
GND3 B7
GND3 B13
GND3 B19
GND3 B25
GND3 B31
GND3 B37
GND3 B43
GND3 B49
GNDH B3
GND
GND
CN1

Model : PM-10000, MC-10000
/Stylus Pro 10000, Stylus Pro 10000CF
Board : C362SUB BOARD
Sheet : 1 / 1
Rev. : 0


D[0-31]は各々ガードリングのこと。
A[1-23]は各々ガードリングのこと。
IC1
uPD705103GM-180-8ED(V833)
IC2
MBM29LV400TC-70PFTNC
IC3
SDRAM_64M_32_TSOP
IC4
SDRAM_64M_32_TSOP
IC5
E05B86BA
IC6
PST592JMT
IC7
KL5A71007
IC8
EZ1117ACST-2.5.TR
IC19
W180-01
CN1
AGPコネクタ
各々GNDでガードリングすること。
各々GNDでガードリングすること。
GNDでガード
未実装
D[0-31]
A[1-23]
SDA[2-12]
SDD[0-31]
DQM[0-3]
DATAIN[0-7]
DATAOUT[0-7]
HADR[0-5]
HDAT[0-15]
PDAT[0-15]
JFD[0-31]
INIT[1-4]
DMAAK[0-2]
DMARQ[0-2]
RESET1
RESET0
GND
+3.3V
+2.5V
+5V

ジャンパ設定	
JP8	1-2 ショート
	2-3 オープン
JP9	1-2 ショート
	2-3 オープン
JP10	ショート
JP11	オープン

Model : PM-10000, MC-10000
/Stylus Pro 10000, Stylus Pro 10000CF
Board : C83321SUB BOARD
Sheet : 1 / 2
Rev. : 0


JFA[2-11]
JFD[0-31]
IC9
E09A24AA
IC10
DRAM16M(X16)(EDO)
MD[0-15]
C_MD[0-15]
C_MA[1-16]
IC11
IC13
SRAM_1M_16M
SRAM_1M_16M
H_MA[2-19]
IC12
IC14
SRAM_4M_16
SRAM_4M_16
H_MD[16-31]
H_MD[0-15]
CLK40
RESET0
RESET1
CCK
CK
JP1
JP2
JP12
未実装
CRU2
SG-8002JC-40MHz-PCC
40.0MHz
R98
R99
R100
R101
C64
1000p
C65
0.1u
16V
+3.3V
GND
MODE0
MODE1
MODE2
TESTEN
STOPEN
SCANEN
RESRV
1VDD
VSS
B8
JP1からCCKとCKまでの配線長を同じにする

ジャンパ設定	
JP1	1-2 ショート
	2-3 オープン
JP2	ショート
JP12	オープン

Model : PM-10000, MC-10000
/Stylus Pro 10000, Stylus Pro 10000CF
Board : C83321SUB BOARD
Sheet : 2 / 2
Rev. : 0